DOCUMENT RESUME

ED 262 131 UD 024 468

TITLE Hawaiian Studies Curriculum Guide. Grade 3.
INSTITUTION Hawaii State Dept. of Education, Honolulu. Office of Instructional Services.
PUB DATE Jan 85
NOTE 517p.; For the Curriculum Guides for Grades K-1, 2, and 4, see UD 024 466-467, and ED 255 597.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF02/PC21 Plus Postage.
DESCRIPTORS *Cultural Awareness; *Cultural Education; Elementary Education; *Environmental Education; Geography; *Grade 3; *Hawaiian; Hawaiians; Instructional Materials; *Learning Activities; Pacific Americans
IDENTIFIERS *Hawaii

ABSTRACT

This curriculum guide suggests activities and educational experiences within a Hawaiian cultural context for Grade 3 students in Hawaiian schools. First, an introduction discusses the contents of the guide; the relationship of classroom teacher and the kupuna (Hawaiian-speaking elder); the identification and scheduling of Kupunas; and how to use the guide. The remainder of the text is divided into two major units. Each is preceded by an overview which outlines the subject areas into which Hawaiian Studies instruction is integrated; the emphases or major lesson topics taken up within each subject area; the learning objectives addressed by the instructional activities; and a key to the unit's appendices, which provide cultural information to supplement the activities. Unit I focuses on the location of Hawaii as one of the many groups of islands in the Pacific Ocean. The learning activities suggested are intended to teach children about place names, flora and fauna, songs, and historical facts about their community, so that they learn to formulate generalizations about location, adaptation, utilization, and conservation of their Hawaiian environment. Unit II presents activities which immerse children in the study of diverse urban and rural communities in Hawaii. The activities promote the study of factors that influence the start and growth of communities in Hawaii and elsewhere in the world, the ecosystem, environmental ethics and economics, and the adaptation of animals and plants to the various environments found in Hawaii. General appendices include a basic Hawaiian vocabulary list, discussions of the concepts of self and "'ohana" (family-based community); a bibliography and discography; and a list of songs cited in the text. (KH)

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HAWAIIAN STUDIES CURRICULUM GUIDE, GRADE 3

EVALUATION FORM

Name (optional): _____

School/Office: _____

Grade/Subjects Taught: _____

Date: _____

HAWAIIAN STUDIES PROGRAM
R. Lokomaika'iokalani Snakenberg
189 Lunalilo Home Rd., 2nd Flr.
Honolulu, Hawai'i 96325

Telephone: 395-8782

Evaluation needed by June 30, 1985

Aloha kākou! As users of this Curriculum Guide or as persons interested in the direction which the Hawaiian Studies Program will take over the next few years, you are being asked to kōkua state OTS Hawaiian Studies Program staff by taking the time to fill out this evaluation form and sending it back to us by June 30, 1985. Please send the completed evaluation to the address given above.

We ask that you not make an evaluation of this guide until you have actually had a chance to use it as designed in conjunction with the kōkua of a native speaker kupuna. In an effort such as this, it is inevitable that some aspect of the curriculum could be overlooked, whether it be content details, techniques for presenting a lesson, proper references for something which seemed commonplace to the curriculum developers or a certain appendix which you might feel should be included. Please forgive the oversight and help us by calling it or them to our attention through this form. Mahalo nui loa for your kōkua and your consideration!

A. In this section, please circle the rating number which is the most appropriate. Comments may be added in the margin. Rating should be made on a scale of 1 to 5: 1-Strongly Agree, 2-Agree, 3-Undecided/No Opinion, 4-Disagree and 5-Strongly Disagree.

| | SA | A | U | D | SD | Comments |
|---|---|---|---|---|---|---|
| 1. The open-page format displaying all subject areas through which the Learner Objectives are to be integrated made it easy to use. | 1 | 2 | 3 | 4 | 5 | |
| 2. The size of the document is comfortable to use. | 1 | 2 | 3 | 4 | 5 | |
| 3. The overviews for the Grade levels/Units were helpful. | 1 | 2 | 3 | 4 | 5 | |
| 4. In general, the appendices provided most of the teacher information that I needed to execute the plans successfully. | 1 | 2 | 3 | 4 | 5 | |
| 5. In general, the work planned for Grade 3 is too easy. | 1 | 2 | 3 | 4 | 5 | |
| 6. The Learner Objectives from the Hawaiian Studies Program Guide were easy to locate in the overviews of each unit. | 1 | 2 | 3 | 4 | 5 | |

(Continued next page)

EVALUATION FORM

B. In this section, please feel free to expand upon your critique, comments and suggestions. Additional sheets may be attached.

Unit I:

Unit II:

General Appendices:

Other Comments:

# FOREWORD

The Department of Education is pleased to present this Hawaiian Studies Curriculum Guide, Grade 3 to teachers, kūpuna and other interested parties who are working toward fulfilling the mandate of the State Constitution that a Hawaiian education program be established within the Department which provides for the study of Hawaiian culture, history and language.

Whereas the fourth grade has long been the level at which study of the indigenous Hawaiian culture was carried out, the Department wishes to integrate study about Hawai'i into our various subject areas at all levels of the curriculum. In the lower elementary grades, teachers and kupuna are to provide our students with educational experiences and activities which help them to understand the self, the 'ohana (family) and the community within our contemporary Hawaiian environment. The educational activities incorporated in this guide were developed in accordance with the objectives of the Hawaiian Studies Program Guide for this grade. This guide includes certain revisions of the draft guide for grades K-3 which appeared in September 1981. That draft guide is now considered inappropriate and should not be used since work with new objectives in Primary Education Curriculum over the past several years has resulted in a restructuring of much of the material in the original draft document and the addition of much new material designed to integrate the focus of study of the community into a contemporary context applicable to all of our students in the public elementary schools.

Many of the activities contained herein are designed for collaborative use by regular classroom teachers and our beloved kūpuna. These may deal with aspects of study concerning the Hawaiian language, stories or tales about people or events related to the students' immediate locale and environment, the use of Hawaiian cultural skills still practiced by members of our Hawaiian and general communities such as gathering limu or preparing various local foods, the singing of Hawaiian and hapa-Haole songs relating to the various communities and islands of Hawai'i nei, dance and other movement related to our Hawaiian environment and other physical and intellectual activities integrating Hawaiian studies into the regular lower elementary curriculum.

Teachers who do not currently enjoy the regular services of kūpuna should be aware that this guide was designed with them in mind also since most of the Hawaiian studies activities can easily be presented by our professionals using the detailed lesson plans and supplementary materials contained in this guide. Training in the use of this guide and in the collaborative relationship between teacher and kupuna is available from district and state staff upon request and at certain planned intervals during the year. Such training and the production of this guide are just a part of the effort being made by the Department to fulfill and support the mandate of the Constitution as it relates to a Hawaiian education program.

Francis M. Hatanaka
Superintendent of Education

## ACKNOWLEDGMENTS

The Department of Education is pleased to acknowledge the kōkua of a number of people, agencies and institutions that contributed to the development and final realization of this Hawaiian Studies Curriculum Guide, Grade 3.

Daryl-Jean Māhealani Pescaia, Hawaiian Studies Curriculum Developer, who wrote this guide and Leilani Oliveira, Kāpalama Elementary School, who wrote the plans for the original draft guide for grade 3 which was published in September 1981.

Edwina Noelani Kanoho Māhoe, Hawaiian Studies Staff Developer, who provided research and editorial support for the development of this curriculum guide.

The following Educational Specialists/State Office Teachers in the Office of Instructional Services who worked closely with the Curriculum Developer to help her plan the instructional activities in their particular subject areas in order to insure that the lesson plans contained herein correspond with objectives and instructional activities designed for grade 3 in the General Education program areas:

Ms. Jane Kinoshita, Social Studies
Ms. Ann Port, Language Arts
Ms. Lynda Asato, Health
Mr. Stanley Yamamoto, Art
Ms. Katherine Yamane, Physical Education
Mr. John Hawkins, Environmental Education
Ms. Deanna Helber, Nutrition Education
Mr. Miles Muraoka, Science

The Kamehameha Schools/Bernice P. Bishop Estate, the Honolulu Advertiser, the Honolulu Star-Bulletin and the individual composers cited herein who graciously permitted the Department to reprint important references for teacher and student use.

Robert Lokomaika'iokalani Snakenberg, Educational Specialist, Hawaiian Studies, who guided the development of this curriculum guide and who was responsible for quality control and editing of this document.

Dr. Mildred S. Higashi, Administrator, Sciences and Humanities, who provided invaluable assistance and advice to the developers and editor in final preparation of this document for printing.

Ms. Annette Dutdut, Hawaiian Studies Secretary, for typing and revising several drafts of this document with unfailing patience, good humor and aloha.

All of the teachers, kūpuna and administrators who used the original draft document published in September 1981 and who shared their mana'o (evaluations) with the developers.

# INTRODUCTION

The Hawaiian Studies Program Guide was written in response to the 1978 Constitutional Amendment which mandates that "the State shall promote the study of Hawaiian culture, history and language." (Article X, Section 4) The total elementary school program is described in the program guide with learner objectives for each grade level, K-6. The Learner Objectives were developed from Part I and Part II Performance Expectations (PEs) which are found in Student Performance Expectations of the Foundation Program, RS 78-6054, August 1978, Office of Instructional Services.

While elements of the Hawaiian Studies program apply to each of the eight Foundation Program Objectives (FPOs), those FPOs most critically addressed by the program include:

| | |
|---|---|
| FPO II | Develop positive self-concept |
| FPO III | Develop decision-making and problem-solving skills |
| FPO V | Develop physical and emotional health |
| FPO VII | Develop a continually growing philosophy that reflects responsibility to self as well as to others |
| FPO VIII | Develop creative potential and aesthetic sensitivity |

This Hawaiian Studies Curriculum Guide, Grade 3 has been designed to provide suggested activities and educational experiences within a Hawaiian cultural context which will help each student to become aware and to develop deeper understanding about the many types of communities that make up the State of Hawai'i.

This study is part of an upward spiraling continuum developed for the lower elementary component of the Hawaiian Studies program. This continuum takes the child through an ever-enlarging study of self, self within the immediate 'ohana (family), the immediate 'ohana within the extended 'ohana-type lifestyle enjoyed by many of our students from different ethnic backgrounds, the 'ohana within the local community and, finally in Grade 3, the local community in comparison to communities throughout Hawai'i and the world.

The Department intends that children in the lower elementary grades learn about Hawaiian culture as it has survived into this modern age around us. Since many of these children in grades K-3 cannot differentiate between events taking place in a time frame of two hundred years ago and those of a year or two ago, it was decided to delay the study of early Hawaiian life until their sense of chronology and history reached a certain level of development. Therefore, it is not until the fourth grade that Hawaiian culture of the pre-European contact era is studied in great detail. This is consistent with the social studies curriculum for that grade level and serves to lessen any disruption to the established curriculum that the introduction of the integrated Hawaiian Studies curriculum might pose.

Students in the fifth and sixth grades study U.S. history and world cultures respectively in their social studies classes. In Hawaiian Studies, students in the fifth grade have an opportunity to contrast their U.S. history study with a parallel study of Hawai'i during the same era. The four units cover Migration; Comparative Culture; Outsiders/Diseases/Immigration; and Hawaiian Poetry, Music and Dance. Hawai'i is a part of the United States and has received much American influence from the early 19th century thus it is appropriate to include important Hawaiian-American historical events in the fifth grade study. In the sixth grade, students have an opportunity to study various cultures of the world in a Pan-Pacific perspective and the relationship of these cultures to Hawaiian culture. The other two important units of study at this grade level focus on the important resources, ka wai (fresh water) and ka 'āina (the land).

In this curriculum guide for grade 3, the focus of Unit I is on the location of Hawai'i as one of the many groups of islands located in the Pacific Ocean. The children are actively involved in the study of landforms, water forms, latitude and longitude, climate, wind currents and rainfall distribution. They study the place names in their community and learn to locate places using local directional terms as well as geographical terms. Through language arts activities, the children are immersed in activities that expand their awareness of and appreciation for the environment. The classroom comes alive with the newspaper as the source of updated information about communities in Hawai'i as well as in other parts of the world. The children learn to sing mele about various locations throughout the islands, creating hula motions and learning to accompany themselves on the 'ukulele. They engage in a variety of art activities using natural materials from the environment to produce finished pieces of art. The environment takes on new meanings for them as they classify flora and fauna on nature study excursions. Through these activities, the children develop the ability to formulate generalizations about location, adaptation, utilization and conservation of their Hawaiian environment.

Unit II immerses the children in the study of diverse urban and rural communities in Hawai'i. Through a variety of inquiry activities, the children identify factors that have influenced the start and growth of communities in Hawai'i as well as in other parts of the world. Through the science component of the unit, the children study Hawai'i's ecosystem and its environmental ethics and economics. They study the environmental factors that affect the adaptation of animals and plants to the various environments in Hawai'i. The children use the newspaper to study daily problems and concerns in their own communities in language arts. They are involved in reading, writing, discussing, comparing, researching and analyzing activities. They sing and compose songs and create dances inspired by Hawai'i's rich ethnic heritage. They create works of art utilizing the natural materials found in the environment. In the health component, the children study factors relating to health and safety in the home, school, community and state. They are involved in an exploration of facts, issues and factors involved in the production of food in Hawai'i and on our dependency on overseas areas of production. The unit permits and encourages teachers and students to do comparative studies of various types of communities in Hawai'i and of similar communities elsewhere as studied in the usual basal texts.

Instruction is to be carried out by the classroom teachers with the kōkua (assistance) of Hawaiian-speaking kūpuna (elders). These community resources have the expertise in Hawaiian culture, including language, and they are an essential element of the program at the elementary level. They are to teach Hawaiian language through an informal, culture-based aural-oral method of teaching incorporating lessons, topics and plans developed collaboratively with the classroom teachers.

One major reason for hiring uncertificated community resources to teach in the public school classrooms is that these kūpuna possess expertise in Hawaiian language and other aspects of Hawaiian culture which complement the expertise of the classroom teacher in presenting a well-rounded and integrated program of study.

During training sessions, it is stressed to the kūpuna that they should structure their lessons based on ideas received from the teachers in collaborative planning sessions or through written communications if face-to-face meetings are difficult to arrange because of time constraints. They have the same curriculum guides used by the teachers and reference to specific lessons and activities will help them to plan effective lessons which can be reinforced by the teacher during other instructional periods. Easy-to-use teacher-kūpuna planning forms are available from most district Hawaiian Studies personnel and also from the state staff at OIS.

The General Appendices section of this guide contains the vocabulary lists for grades K-3 which were developed with the input of a number of program personnel. It is desirable that teachers and kūpuna structure their lessons so that these Hawaiian words are learned by the students before moving up to fourth grade. In general, active mastery of the words listed is expected unless it is noted that exposure is sufficient at this grade level.

Student mastery of Hawaiian vocabulary is just one aspect of the learner outcomes expected in the Hawaiian Studies program. It is not necessarily a major aspect but it is one area in which cognitive learning gains can be measured through vocabulary tests at various grade levels.

Important affective domain aspects of the Hawaiian Studies program to be addressed in grade 3 include:

Unit I:

Hawaiian concepts of aloha (love/greetings); kōkua (help, support); alu like (pulling together); laulima (interdependence); aloha 'āina (love for the land and the people living on it); mahalo (appreciation); ha'aheo (positive pride)

Unit II:

Hawaiian concepts of aloha 'āina/mālama 'āina (love and caring for the land and the people living on it); mo'olelo and mo'okū'auhau (sense of history and genealogy); alaka'i (leadership); ho'oponopono (ability to resolve problems); no'ono'o (contemplation and planning capabilities); kuleana (responsibility, roles); kapu (understanding and following rules and laws); pa'ahana (industriousness); no'ono'o hana (creativity and composition); olakino maika'i (sense of well being, good health); lōkahi (sense of harmony and balance in living and dealing with others); aloha (love, respect, friendship)



There are many activities promoting these concepts provided to the teachers and kūpuna through this curriculum guide. These are offered through an integrative, thematic approach so that the instructional activities can be carried out through a number of subject areas, addressing the concerns and performance expectations of the particular subject area and Hawaiian Studies at the same time.

These instructional activities have been reviewed and critiqued by the various educational specialists in the General Education Branch of the Office of Instructional Services whose valuable suggestions have strengthened the Hawaiian Studies curriculum presented here.

Since the Hawaiian Studies curriculum developers are aware, having been classroom teachers themselves, of the limited amount of time that classroom teachers have to do research in unfamiliar curriculum areas such as Hawaiian Studies, every attempt has been made to develop this guide with appendices which include pertinent readings and worksheets for teachers and students which are needed and helpful in presenting interesting and thought-provoking lessons. Much information has been included to help the teacher with background in various aspects of Hawaiian culture.

It should be noted that every attempt has been made to keep the content of this curriculum guide as free of sex-role bias as possible. However, roles defined by sex were an important and acceptable part of the society of the early Hawaiians and this may be seen in some of the stories, pictures or teacher reference materials. When appropriate, teachers may wish to point out such differences in early Hawaiian society and modern American society.

## THE ROLE OF THE TEACHER IN THE HAWAIIAN STUDIES PROGRAM

The classroom teacher has the most important role in the implementation of the Hawaiian Studies Program in the classroom. Through the use of this guide and other resources, the teacher plays the key role in the integration of Hawaiian Studies curricular materials and instruction. A teacher is free to choose those activities in this guide that meet his/her expectations and plan accordingly. The kupuna is an important part of this teacher planning because the one hour instruction per week per class, which most kūpuna will be allotted, should be instruction that enriches the teacher's instructional activities.

It is the responsibility of the teacher to:

- provide instructional leadership to the kupuna in the classroom;
- work cooperatively with the kupuna to develop short- and long-range lesson plans based on the state's curriculum plans and the needs of the particular group of students;
- monitor the instruction of the kupuna in order to give the kupuna the benefit of the teacher's experience in lesson preparation, presentation and evaluation;
- participate in the instruction of the class in order to be able to follow up, review and reinforce those concepts, practices and vocabulary taught by the kupuna;
- assist the principal in the evaluation of the work of the kupuna;
- include, in the teacher's own instruction, those aspects of Hawaiian Studies as are presented in the curricular materials.



## THE ROLE OF THE KUPUNA IN THE HAWAIIAN STUDIES PROGRAM

The kupuna (grandparent) has an important role in the Hawaiian Studies Program. Although a number of kūpuna teaching in the schools are over the state's mandatory retirement age for teachers, they have been accepted to work as Part-Time Teachers (PTT) at the current rate of compensation in this program because they represent within themselves the kinds of qualities and knowledge to which we want our students to have exposure.

Although some of the kūpuna are not readers nor writers of Hawaiian at a sophisticated level, and the majority of them did not complete their own secondary education, they nonetheless speak Hawaiian and have an education for living which they have picked up in their many decades of living in this Hawaiian environment. Most of them grew up in the households of their own kūpuna, learning to speak Hawaiian as a native language and participating in the kinds of Hawaiian practices which are now only available to our teachers through written descriptions in books.

Most of them have as part of their own psychological and cultural make-up the kinds of Hawaiian values which are the subject matter of the Affective Strand of the Hawaiian Studies Program. Obviously, then, the selection of bonafide kūpuna for a school is a very important responsibility of school/district personnel.

It is the responsibility of the kupuna in this program to:

- teach the Hawaiian language component of Hawaiian Studies;
- work closely with the classroom teacher in planning lessons which present Hawaiian language and culture to the students in accordance with the year-long plan of instruction of the teacher for the particular grade level;
- attend inservice training sessions in order to learn some of the skills needed for teaching in the public school classroom;

- plan, carry out and evaluate the kupuna's own instruction;
- work with the other kūpuna in the program to improve and expand cultural knowledge and Hawaiian language speaking ability on the part of all of the kūpuna;
- work cooperatively with the district and state personnel who are charged with managing the program.

## COLLABORATION BETWEEN TEACHER AND KUPUNA

Teachers and kūpuna are asked to draw upon their own experience and common sense in deciding what elements of these curriculum plans should be presented to the students of a particular school and classroom. Readiness is the key. Most of the activities in grade 3 are not oriented to reading and writing and should therefore be practical even for immigrants who have limited English speaking abilities.

The Department's Hawaiian Studies Program seeks to give some validation and worth to the culture of the ancestors of many of the children in our public school system. It is hoped that the spark of motivation to learn through the academic system with the help of non-college trained teachers such as kūpuna and other community persons, will grow in many of our students.

The program provides the opportunity for children to learn from kūpuna and kumu (teachers) and the kūpuna and kumu in turn to learn a great deal from one another and from their students and the students' families.

## HAWAIIAN STUDIES PROGRAM ADMINISTRATIVE INFORMATION

Different school districts and communities located throughout the State of Hawai'i have varying needs and expectations relating to the Hawaiian Studies Program. Some of the factors affecting needs and expectations are the proportion of Hawaiians in the school population; the nature of the community, rural or urban; location of the school relative to the sea or to Hawaiian agricultural sites; established Hawaiian areas versus newly developed subdivision areas; and, the interest of the school's faculty and administration in the program.

In some areas, qualified kūpuna may be abundantly available whereas in other areas administrators may not be sure where to begin looking. The following section is meant to provide some helpful suggestions on what to look for in a kupuna; where and how to identify and recruit kūpuna; a recommended interview and selection process; and, some points to consider when scheduling kūpuna instruction.

### Criteria for Selection of Kūpuna

The criteria identified in the initial OIS/Hawaiian Studies "Training Plan - Kūpuna" (October 1980) for the pilot year 1980-81 reflect the kind of person that should be identified, recruited, interviewed and selected for the Hawaiian Studies Program. Selected kūpuna reflect the following characteristics:

1. is a native speaker and fluent or near-fluent in the Hawaiian Language;
2. is knowledgeable to some extent about Hawaiian culture in general and has knowledge of local history and cultural practices in particular;
3. is physically able to travel and to work on a regular basis in the classroom;
4. is able to develop rapport with classroom teachers and students;
5. is able to integrate Hawaiian language activities into the classroom program;
6. is able to relate other classroom activities into the Hawaiian language component of the program;

7. is willing and able to work collaboratively with the teacher(s) in order to plan lessons and activities which address the learner objectives of the Hawaiian Studies Program for the various strands in the particular grade level(s) involved;

8. is willing and able to share expertise in Hawaiian oriented activities within the school;

9. is willing to participate in classroom activities within the school; and,

10. is able to follow school procedures.

Identification of Kūpuna

Hawaiian elders and those of other ethnic backgrounds who are fluent native speakers of Hawaiian can be sought and identified in a number of ways. Some of these include:

- Contact the Hawaiian Civic Club, Senior Citizens group, or other such community organizations.
- Discuss the school's need with the kahu (pastor) of local Hawaiian churches.
- Ask for referrals from agencies such as Alu Like, Hawaiian Homes Department, and Queen Lili'uokalani Children's Center.
- Put an advertisement for Hawaiian speaking kūpuna in the daily newspapers and in the community newspapers.
- Ask for recommendations from the school community--PTA, custodial and cafeteria staff, teachers, booster clubs, and others.
- Broach the subject with likely looking prospects whom one sees in stores, at the beach, in the school office and elsewhere with the understanding that final selection is based on the interviewing process.



Interviewing and Selection of Kūpuna

Many, but not all, older Hawaiians in their late fifties, sixties and seventies can still speak the Hawaiian language. It should not, however, be assumed that every older Hawaiian can speak the language. Merely asking in English whether a prospective kūpuna speaks Hawaiian is not a safe way of assuring selection of high quality Hawaiian speaking kūpuna.

All candidates for the kūpuna positions should be interviewed by a board of three or four interviewers, one of whom should be an acknowledged fluent Hawaiian speaker. Assistance is readily available from the state staff if needed for this.

In the course of asking a set of prepared questions during the interview, the Hawaiian speaking interviewer should ask a question or series of questions dealing with the work of the prospective kupuna-teacher. This should be done within a conversational context and the questions should not be too technical in nature since the kupuna may lack the technical vocabulary in Hawaiian needed to discuss academic or school-related topics.

Questions could be centered around topics which the kupuna might ordinarily be expected to teach in a classroom situation--songs, cultivating kalo, fishing, picking limu, preparing food, etc. How the prospective kupuna-teacher responds must be judged by the Hawaiian speaking interviewer and that judgment should play a large part in the selection of the kupuna since one of the major criteria for selection is fluency or near-fluency as a native speaker of Hawaiian.

A test of reading or writing abilities in Hawaiian is not warranted since the kūpuna will be teaching in an aural-oral mode, however, all things being equal, kūpuna who can read and write Hawaiian should be selected over those who do not since many optional learning materials for the kūpuna relating to Hawaiian culture are available in Hawaiian language

versions. The ability to read these materials from the last century and the ability to write lesson plans based on such materials will enhance the quality of the kūpuna's instruction.

Interviewees whose Hawaiian language speaking abilities are in question can be referred to state staff if desired and further interviewing in Hawaiian can take place in person or on the telephone.

Selection of kūpuna can either be made for a district pool, for specific schools or a combination of the two. Principals whose schools are involved in the program should be invited to take part in the interviews, either personally or through questions which they have submitted. The principals will presumably have referred some kūpuna for consideration based on contacts which they are able to make within their school communities.

Experience has shown that using kūpuna from the school community can have both positive and negative aspects. They will usually know and often be related to a number of children in the school. If they are natives or long-time residents of the area, they probably know stories about the area, the school and the people who have lived and worked in the area. They may be acquainted with legends, place names, important sites and other aspects of the area which would be helpful and interesting in making the Hawaiian Studies instruction more localized. Sometimes, kūpuna and/or their families have had unpleasant associations with the school or certain teachers in the past. Principals must inform themselves of such situations so that adjustments can be made in the kūpuna selection or assignment processes or in the scheduling process at the school level.

Scheduling of Kūpuna

The state standard for employment of Part-time Teachers (PTT) limits them to a maximum 17-hour week. Because the kūpuna are PTT, there is no provision for them to work overtime or to receive mileage or other benefits. In order to use the Personal Services funds with the most cost effectiveness, it is essential that a principal schedule a kupuna into classes somewhat tightly with a minimum of lost time between classes. If teachers do not wish to release time for Hawaiian Studies instruction during the early morning hours when the children are fresh, the principal should then try to schedule the kūpuna into classes between morning recess and lunch or after lunch until the end of the school day.

The optimum contact time that leads to effective learning of Hawaiian Studies seems to be approximately an hour a week. This can be divided into three 20-minute sessions for the lowest grades or two 30-minute sessions for the middle and upper elementary grades. Teachers are encouraged to cooperate by having the students ready for the kūpuna and the kūpuna are encouraged to have a well planned lesson which can be presented with a minimum of delays and wasted time.

Like teachers who work past 3:00 p.m. or devote their weekend time to their students' extracurricular activities, kūpuna who get involved in the life of the school beyond the number of hours that they are scheduled, do so as volunteers.

HOW TO USE THIS CURRICULUM GUIDE

Each of the two units in this guide is preceded by an overview section which presents at a glance the subject areas into which the Hawaiian Studies instruction is integrated; the emphases or major lesson topics taken up within each subject area; the Hawaiian Studies Learner Objectives (from the Hawaiian Studies Program Guide) addressed in the instructional activities; and, the appendices which have been included to make teacher/student reference materials more readily available.

The same Learner Objectives may be applicable and appear in the listed objectives for several subject areas. The number of Learner Objectives listed for any particular subject area does not necessarily mean that that subject area is any more important in Hawaiian Studies instruction than another.

The body of each unit is made up of a series of columns labelled with the name of a General Education program area plus a column labelled "Recreational Activities." The subject areas involved may vary from unit to unit and from grade to grade. In Grade 3 the subject areas into which Hawaiian studies are integrated are as follows: social studies, language arts, science, environmental education, music, art, health and nutrition education.

The Hawaiian Studies curriculum is social-studies based with the social studies activities appearing in the far left column and setting the stage for the activities which can be carried out during other instructional periods all supporting the basic theme, topic or emphasis of the unit lesson.

The whole point of the integration of Hawaiian Studies into the general education curriculum is to use Hawai'i-oriented content in instructing the program area concepts which the Department desires to be taught in the various grade levels. When teachers address the Learner Objectives for Hawaiian Studies, they are generally attending to the Performance Expectations for the various subject areas upon which the Learner Objectives were based.

## CULTURE STUDY THROUGH DRAMATIC INQUIRY

What is the best way to study another culture? Anthropologists say that one must take oneself out of one's culture and into another culture in order to get an inside view. One way of experiencing another culture is through the process of dramatic inquiry. This is a systematic approach to learning about another culture through dramatization. In this process, the students are encouraged to dramatize possible uses of cultural artifacts within an arranged environment and to explore ideas and inquire about the life processes of a culture.

The following outline suggests the possible sequence of activities:

1. An Arranged Environment - An array of familiar as well as unfamiliar Hawaiian artifacts and equipment is displayed. Examples:

   'umeke (bowls), ko'i (adzes), 'upena (nets), lūhe'e (octopus lure), 'ō'ō (digging stick), mea kaua (weapons) and mea hana (tools).

   The children are invited to explore and handle the objects, to discuss and to hypothesize how the articles were used.

2. Dramatization -

   A. The children select one object each and think about how that object might have been used in ancient Hawai'i.

   B. The classroom is divided into 3 areas:

      1) Uka - the mountains/uplands
      2) Kula - the midlands
      3) Kai - the sea

   C. The children decide in which area they would have used their object if they were living in ancient Hawai'i.

   D. They dramatize how the objects were used in their areas. A recording of a chant may be played to create an atmosphere that suggests ancient Hawaiian living.

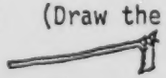
   E. The groups share their dramatizations with the entire class.

3. Expression of Needs -

   A. The students discuss their experiences and questions are raised and recorded on charts. Record all of their questions without giving away the names of the objects.

      Example:

      What is ? (Draw the object the child refers to; avoid giving the name of the object.)

      What was  used for?

   B. The questions then become the basis for the year's program.

   C. The questions can be grouped into workable research groups by the children. Example: Which questions seem to go together?

4. Series of Learning Activities - The teacher and students plan activities for gathering information. They also plan which area of Hawaiian culture to study first based on the students' interests and the dramatization. The activities may include:

   resource speakers
   research - individual and group
   field trips
   audio visual research
   experimentation

5. Further Inquiry - The children share the information learned through participation in learning activities. This leads to further dramatizations on a higher level of thinking and the entire process repeats itself.

Once the sequence of activities has been completed, it leads back to the original situation where an arranged environment should be established and the cycle begun all over again dealing with new questions which the students needed to discuss, dramatize and research. These cycles continue on more complex and accurate levels which refine the students' knowledge and skills.

It is important to note that this inquiry technique can be used in many ways. In the place of actual realia or artifacts, teachers may choose to use photos, drawings, plants, foods, recorded sounds, sheet music, dance instruments or any number of other kinds of audio-visual instructional aids. The children do not always have to dramatize the use of something, although the silent dramatizations do provide opportunities for the other children to ask questions.

The teacher or kupuna should be careful to encourage questions after a dramatization or any other kind of performance or presentation. If the children provide answers rather than ask questions, the follow-up research activities cannot really get started. Through the use of the inquiry technique, teachers can find out what is really important to the children and build lessons based on that interest. Supplementation can be made later of facts, skills and concepts which the teacher believes to be important once the children have been "hooked" into a lesson fashioned from their own expressions of interest and inquiry.

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UNIT I Community Awareness

This unit focuses on the location of Hawai'i as one of the many groups of islands located in the Pacific Ocean. Through planned learning activities, the children study place names, flora and fauna, songs and historical facts about their community. Through these learning activities, the children develop the ability to formulate generalizations about location, adaptation, utilization and conservation of their Hawaiian environment. 1

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UNIT II Diverse Communities In Hawai'i

This unit immerses the children in the study of diverse urban and rural communities in Hawai'i. The children identify the factors that influence the start and growth of communities in Hawai'i as well as in other parts of the world. They study the ecosystem, the environmental ethics and economics and the adaptation of animals and plants to the various environments found in Hawai'i. The unit promotes the study of the Hawai'i environment with the study of environments found elsewhere in the world. 55

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Grade 3

Unit I

COMMUNITY AWARENESS

This unit focuses on the location of Hawai'i as one of the many groups of islands located in the Pacific Ocean. Through planned learning activities, the children study place names, flora and fauna, songs and historical facts about their community. Through these learning activities the children develop the ability to formulate generalizations about location, adaptation, utilization and conservation of their Hawaiian environment.

| CONTENT AREAS | EMPHASES |
|---|---|
| SOCIAL STUDIES | Locating places on maps and globes<br>Continents<br>Oceans<br>North Pole<br>South Pole<br>Countries and islands in or bordering the Pacific Ocean<br>The Hawaiian Islands<br>Major city/town and major mountain on each island<br>Latitude and longitude readings<br>Directional terminology used in Hawai'i today<br><br>Studying Hawai'i's weather and climate |
| SCIENCE | Constructing a magnetic compass<br><br>Learning the four cardinal directions<br>Using a magnetic compass<br>Locating places using compasses, longitude and latitude<br><br>Mapping skills<br>Locating natural features: lakes, mountains, bays, rivers, peninsulas, islets, harbors<br><br>Studying the geology of Hawai'i<br>Volcanic formations of the Hawaiian Island Chain |

## LEARNER OBJECTIVES

- Locates the Hawaiian Islands as one of many groups of islands found in the Pacific Ocean.
- Is able to locate the Hawaiian Island chain using longitude and latitude.
- Identifies the four (4) major islands with their important mountains and locates them on a map.
- Is able to locate places in the community using local directional terms (eg., ma uka, ma kai, 'Ewa, etc.).
- Is aware that the terrain affects weather including wind currents and rainfall distribution.

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- E Maps of each island, pp. 26-33
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- Uses a compass to locate places in the community and on the island.
- Recognizes the natural features found on the islands and is able to identify them through map symbols (rivers, mountains, canyons, cliffs, lakes, etc.).
- Is aware that the islands in the Hawaiian chain extend for a distance of more than 1,500 miles and that the volcanic formation of the islands began millions of years ago.

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| CONTENT AREAS | EMPHASES |
|---|---|
| LANGUAGE ARTS | Giving directions on how to get from one place to another<br>Verbal<br>Written<br><br>Expressing feelings about the community<br>Building awareness of the elements in a community<br>Creating poems about significant landmarks or places<br><br>Using the newspaper as a source of information about communities in other parts of the world<br>Reading articles<br>Summarizing<br>Expressing opinions<br>Locating these communities on a map or globe<br><br>Learning the Hawaiian vocabulary for natural phenomena in Hawai'i<br><br>Exploring the community<br>Researching<br>Interviewing<br>Writing letters to community leaders |
| MUSIC | Singing songs of the islands<br>"Na Lei O Hawai'i"<br>"Hawai'i the Beautiful"<br>"Hawai'i Pono'ī"<br>"Hawai'i Aloha"<br>"If I Should Ever Travel"<br>"Hawai'i Nei"<br><br>Learning the waiho'olu'u (color) and lei of each island<br><br>Creating/composing lyrics for songs<br><br>Learning chording on the 'ukulele and autoharp to accompany songs<br><br>Creating hula motions for songs |

## LEARNER OBJECTIVES

- Recounts some of the legends and stories relating to landmarks and locations within the student's community or neighboring area.
- Initiates and engages in simple conversational exchanges using Hawaiian expressions and verb/verbless phrases.
- Responds in Hawaiian to simple oral instructions and requests given in Hawaiian.
- Imitates with correct pronunciation the Hawaiian words, expressions and phrases modeled by the teacher or kupuna.
- Describes some of the natural phenomena in Hawai'i and identifies them with their proper Hawaiian names.

- Sings selected Hawaiian songs introduced by the teacher while playing rhythm instruments in time with the beat.
- Coordinates motions and movements of hands and feet while performing a traditional hula kahiko or hula 'auana.
- Expresses personal feelings about Hawai'i through the creation of lyrics for songs.
- Sings songs about Hawai'i using correct pronunciation of Hawaiian words.
- Recognizes rhythmic patterns produced in Hawaiian songs.

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Unit I - K Translation for "Nā Lei O Hawai'i," p. 46

- L "Hawai'i the Beautiful," p. 47
- M "Hawai'i Aloha," p. 48
- N "If I Should Ever Travel," p. 50
- O "Hawai'i Nei," p. 51

| CONTENT AREAS | EMPHASES |
|---|---|
| ART | Experimenting with native materials in crafting artistic works<br>Lei making using a variety of materials and techniques<br>Creating a Hawaiian forest environment in a terrarium<br>Creating with pulu niu (coconut fiber)<br>Polishing a Hawaiian seed<br>Braiding using three strands<br><br>Illustrating, using a variety of techniques<br>Drawing scenes for a movie roll to illustrate stories |
| ENVIRONMENTAL EDUCATION | Becoming aware of the flora and fauna of Hawai'i<br>Seed dispersal methods<br>Classifying seeds according to method of dispersal<br>Plant growth as it relates to temperature and soil conditions and rainfall |

| LEARNER OBJECTIVES | APPENDICES |
| --- | --- |
| • Uses a variety of materials and techniques in crafting artistic works which reflect the student's feelings about Hawai'i's environment. | |
| • Classifies flora and fauna found during nature study excursions within a Hawaiian, scientific, or some individual taxonomy.<br>• Defines the terms "indigenous", "endemic" and "exotic/introduced" in relation to flora and fauna in Hawai'i.<br>• Recognizes those plants that are indigenous and those that are exotic (including Polynesian introductions). | Unit I - P Worksheet: "Classifying Nā Mea Kanu (Plants)", p. 52<br>- Q The First Living Organisms in Hawai'i, p. 53<br>- R Uses of the Coconut, p. 54 |

## SOCIAL STUDIES

- The following activities involve the children in a study of their island; its location and its characteristics.

Locating places - Materials needed:

Four or five globes
Wall map of the world

See Appendices Unit I-A, -B, -C, pp. 22-24.
Run off a copy of each map for the children.

A. Divide the children into four or five mini-'ohana. Hand each 'ohana a globe and allow the children to observe the globe and be able to tell what kind of information is available to people who use a globe.

E.g.,

The globe tells us that the earth is round. We can locate oceans and bodies of water by looking at the blue parts of the globe.

B. After three to four minutes of mini-'ohana work, have the groups share what they learned. Write their learnings on a wall chart as they share them. This is a good way to find out how much they know about the use of the globe.

C. Based on the above activity, plan some map skill building exercises:

1. Locate the seven continents;
2. Locate the oceans;
3. Point to the North Pole, the South Pole, and the Equator;
4. Locate the United States.



## SCIENCE

- The children will study the four cardinal directions and will practice giving and following directional instructions.

A. Constructing a magnetic compass

1. Conduct some science experiments to enrich the children's understanding of directions.

Materials needed:

A cork
A glass or plastic bowl filled with water
Bar magnet
Needle

a. See the science resource teacher for help in gathering the materials so that groups of children can alu like (work together) to build a compass.
b. Explain that a magnetic compass points a few degrees away from the north due to the magnetic field created by the earth's rotation. This is called magnetic north.
c. Steps to follow:
   1) Stroke the needle against one end of the bar magnet always stroking in the same direction.
   2) Push the needle through the sides of the cork.
   3) Float the cork and needle in the bowl. The magnetized end of the needle will point north and the other end will point south. Have the children check to see that their needles all point to the north wall.



## LANGUAGE ARTS

- The following activities allow the children to write, speak, discuss, create, listen to directions and express their feelings about Hawai'i.

A. Giving directions

1. Have the children think about how they go to and from school. Have them visualize the route they take starting from home all the way to school.

2. Give each student a sheet of sketching paper on which to draw a map of the route to school. As a sample, have them help you sketch a map of the route from school to some well known eating place or community landmark. Include street names and significant buildings or landmarks. Draw the directional arrows marking the route.

3. Using the map, have the children practice telling each other how to get to the chosen destination. Have them use such phrases as turn right on _____ Street, go three blocks and turn right on _____ Street. While one person is verbalizing the directions, the rest of the mini-'ohana members should be checking the map to see if the directions are correct.

4. After each student has had a chance to speak in a mini-group, have them write the directions in clear sequential sentences.

## MUSIC

- The following activities involve the children in learning some songs of the islands.

Songs of the Islands

1. "Nā Lei O Hawai'i"

   Source: King. King's Book of Hawaiian Melodies, pp. 6-7.

   a. This song describes the lei of each of the main eight islands in the Hawaiian chain. As the children study the islands in social studies, teach them the verse that goes along with each island. This song describes particular places on some of the islands. Point out these places on a map.

      E.g.,
      Haleakalā on Maui
      Lanikāula and Moa'ula on Moloka'i
      Pana'ewa on Hawai'i

   b. Using Appendix Unit I-E, pp. 26-33 introduce the lei of each island by referring to the map.

   c. Introduce the word "waiho'olu'u" (color). Have them learn the color of each island in Hawaiian. Have available for them the lei or flower if such is available. Otherwise use pictures found in:

      . Alexander & Baldwin. Emblems of Our Islands, 1981.
      . Kamehameha Schools. Explorations/ Ho'omāka'ika'i, various years.
      . McDonald. Ka Lei.



## ART

- The children will participate in creative art activities using elements of the Hawaiian environment.

A. Island creations

As the children learn more about the islands in other subject areas, help them become acquainted with some of our island crafts. See OIS/Art Education guide, RS81-0719, Resource Units in Hawaiian Arts and Crafts for complete instructions and diagrams on many Hawaiian art activities.

1. Lei making (pp. 101-104). When the children have learned about their state and island flowers in social studies, plan a lei making session in art to acquaint them with a few techniques in fashioning a lei.

   a. Discussion
      1) What is a lei?
      2) What kinds of lei have you seen?
      3) Of what kinds of materials have you seen lei made? (List these on a chart)
      4) Which of these materials are natural and which are made or processed by humans? (Put an asterisk next to those materials that are "natural.")

      E.g.,
      Crêpe paper
      *Flowers
      *Leaves
      Yarn



## ENVIRONMENTAL EDUCATION

- The children will study the flora and fauna of the Hawaiian Islands and formulate some generalizations about the successful adaptation of these plants and animals in the Hawaiian environment.

A. Awareness of nā meakanu (the plants)

1. Inquiry:
   Have the children think of various meakanu (plants) they have seen and list them on a class chart.

   a. Hand out a sheet to them and have them predict in which column each plant belongs on the worksheet found on p. 52 of Appendix Unit I-P. Discuss the terms endemic, indigenous and exotic with them using the worksheet.

   b. Have the children imagine Hawai'i long ago with no plants, just hot masses of lava and barren rock or landscape.
      Ask:
      1) How do you suppose the first meakanu (plants) and holoholona (animals) arrived on the islands? (wind, waves, stuck to the feathers of birds, imbedded in mud on the feet of birds, contained in bird kūkae/ excrement)
      2) What did these meakanu and holoholona look like? (spores, seeds, insects, birds, seals, whales)

## SOCIAL STUDIES

Have the children use the globes as well as the wall map to locate the named locations.

D. Hand out Appendix Unit I-A, p. 22. Have the children fill in the names of the seven continents and the oceans.

E. Have them locate North America and find the United States on that continent.

1. How many countries make up North America? (3)
2. How many states make up the United States ? (50)
3. Where is Alaska ?
4. Where is Hawai'i ?

F. Hand out Appendix Unit I-B, p. 23. Have them locate Alaska and Hawai'i on the map.

1. Using an encyclopedia or the Kamehameha Schools Explorations book, have the children draw the state tree, the state flower, state flag and the state bird for Hawai'i.

2. For added practice in research have the children do the same for another state of their choice.

G. Using Appendix Unit I-A, p. 22 Ask:

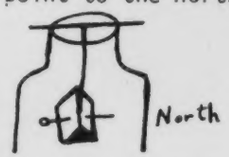
1. In what ocean do we live?
2. What continents surround Hawai'i?



## SCIENCE

2. An alternate activity may be to construct another compass using a needle, a card folded in half, thread and an empty quart bottle. Steps to follow:

   a. Magnetize the needle the same as described in #A.1.c.1) above.
   b. Push the needle through both sides of the folded card.
   c. Suspend the card within the bottle using a thin thread. The magnetized end of the needle should point to the north.




B. Learning the four cardinal directions using longitudinal and latitudinal lines.

Materials needed:

Magnetic compasses
Marking pens
Masking tape
Several yardsticks

1. Hand out compasses to the children. Have them hold their compasses and find which way is magnetic NORTH. Have them walk around the room and face in a variety of directions to see if the needle still points to the same wall. Write a sign that says NORTH and place it on the north wall.



## LANGUAGE ARTS

5. Have the children write the directions to their homes. Allow them to do homework at home so they can check street names and sketch buildings and landmarks that they pass on the way to and from school.

6. After all of the students have completed their maps, draw a large map of the school community on a large chart. Have the children help locate street names, well known landmarks, significant buildings, trees, and other points of interest. Include the logos of such places as service stations and fast food locations.

   a. Have each student draw a scaled picture of his/her house with the family name on it and place the house on the correct street.

   b. Other community centers and places of interest may be added to the mural as the children become more observant of their environment.

B. Expressing feelings about the community

1. Prepare a bulletin board with the title "Our Wonderful Community." Encourage the children to look in magazines for pictures that represent aspects of their community.

2. Have the children arrange these pictures under the correct titles on the bulletin board.

## MUSIC

d. As each verse is taught, interpret the song for them. The English translation is written for some of the verses in King's book. For all the translations see Appendix Unit I-K, p. 46.

e. Encourage the children to learn a few chords on the 'ukulele and to follow along in accompanying you on the instrument.

2. "Hawai'i the Beautiful"

See Appendix Unit I-L, p. 47.

No one really knows who wrote the words to this song but the words express the composer's sensitivity to the beauty of the islands.

Teacher preparation:
Write the words for "America the Beautiful" on one chart and those for "Hawai'i the Beautiful" on another chart. Have available an autoharp or an 'ukulele for accompaniment.

a. Have the children express their feelings for Hawai'i. Ask:
What is it about Hawai'i that makes you feel proud or happy to be living here?

b. List their answers on a separate chart.

c. To help the children become more aware of the beauty of living in Hawai'i ask them:
What do we have here that people living in the middle of Africa may not have?



## ART

b. After distinguishing the difference between natural and human made, show the children pictures of lei from any readily available source. An excellent resource with colored photographs of lei made by local artists and amateurs including children is Marie McDonald's Ka Lei. If available, show the children the variety of flowers, ferns, seeds, leaves, stems, and other natural materials used by lei makers to fashion lei.

c. Use the school kupuna or another community resource person to demonstrate some of the styles of lei making found in Resource Units in Hawaiian Arts and Crafts.

d. Ask the children to look for flowers, leaves, and other plant parts that can be made into lei. Plan a lei making session with parents helping mini-'ohana of four or five children.

e. When the lei are finished have each lei maker share his/her creation and tell the names of the materials used in the lei. If parent helpers are knowledgeable, they can help by giving kōkua, expecially with the Hawaiian names of the flowers.

f. Have the children take their lei home for their parents with a message about the meaning of the lei. This message can be prepared ahead of time in language arts.



## ENVIRONMENTAL EDUCATION

3) How did the makani (wind) help these meakanu and holoholona get here? (Have the children comment on the size these holoholona and huakanu/plant seeds had to be in order to be carried long distances by the makani.)

2. Use reference books to find pictures of these miniscule meakanu and holoholona. Suggested resources:

a. Carlquist. Hawai'i A Natural History.
b. Feher. Hawai'i: A Pictorial History.
c. Lamoureux. Trailside Plants of Hawai'i National Parks.

3. Encourage the children to look for huakanu (plant seeds) that travel by air.

E.g.,
Dandelions
Milkweeds

4. Have the children look for tiny insects. Skimming the surface of pools and ponds with fine scoop nets will yield some miniscule insects. Use magnifying glasses to have the children observe these insects and formulate generalizations on how these living things found their way to Hawai'i. See Appendix Unit I-Q, p. 53 for information on these early arrivals on the Hawaiian islands.

## SOCIAL STUDIES

3. What are some of the countries that are located in or border on the Pacific Ocean?

   E.g.,

   | | | |
   |---|---|---|
   | Australia | Japan | Peru |
   | Canada | Korea | Philippines |
   | Chile | Mexico | Tonga |
   | China | New Zealand | USSR |
   | | | Vietnam |
   | | | Western Samoa |

   Use the globes and/or the wall map as references.

4. Have students identify or point to an island and a continent. Then ask them to define: What is a continent? What is an island? Have them clarify the difference between a continent and an island.

H. Hand out Appendix Unit I-C, p. 24. Have the children note the large number of islands located in the Pacific Ocean. Encourage them to:

1. Name some of the islands that they have heard of before.

2. Identify five large island groups:
   Indonesia
   Melanesia
   Micronesia
   Philippines
   Polynesia

3. Locate Hawai'i and decide in which of the above island groups it belongs.



## SCIENCE

2. Using the compasses, have the children identify SOUTH, WEST and EAST in relation to magnetic NORTH and place the appropriate sign on the correct wall.

3. Have the children study the wall map. Identify the lines that run NORTH and SOUTH as longitude and those that run EAST to WEST as latitude. Also, identify the zero latitude line as the equator.

4. Create a grid on the floor of the classroom with string, tape or chalk using at least 10 lines each for degrees of latitude and longitude.

   a. Measure the length of the room and then the width of the room and decide, as a group, how many inches will be between each line.
   b. Divide the length into an equal number of sections and do the same with the width. The room should resemble a checkerboard square.
   c. Identify the center line as the zero latitude line (the equator) and assign north and south degree numbers to the other latitudinal lines. Use the middle perpendicular line as the zero degree of longitude and assign east and west degree numbers to the other longitudinal lines.
   d. The objective is to have the children learn to locate by using degrees of latitude and longitude as shown by the lines. Plan a



## LANGUAGE ARTS

E.g.,
"Our Animals"
"Our Businesses"
"Our Community People"
"Our Recreation Facilities"
"Our Transportation"

3. Encourage the children to bring snap shots they may have or encourage them to take pictures of significant places in their community.

4. Creating poems about some significant landmark or place can be fun. Have the children select a place or landmark they are particularly fond of and encourage them to write poems about it. Have them share their poems and mount them on the bulletin board on 5" x 7" cards.

5. Invite a community resource person to share legends and stories about the landmarks and places in the community.

C. Using the newspaper to learn about other places in the world.

1. Have the children bring in their newspapers from home.

2. Have them locate places that are mentioned in the newspapers. Use the globe and wall map.

3. Encourage the children to read a few of the articles with a partner so they can be more aware of things happening in the world. Have them exchange feelings and opinions.

## MUSIC

E.g.,
Cool ocean
Mild temperatures all year round
Tradewinds
White sandy beaches, etc.

d. Introduce the two charts. Talk about the words and the feelings they express. Discuss the similarities/differences and have the children summarize their observation in one sentence.

E.g.,
Both songs express the composers' aloha love for their country/islands.

e. Have the children sing both songs using the autoharp as an accompaniment.

Enrichment:
Have the children compose another verse for "Hawai'i the Beautiful" using the thoughts and feelings on the class chart done above in activity 2.b., p. 11.

3. "Hawai'i Pono'ī"

Source:

Comprehensive Musicianship Through Classroom Music, Zone 2, Book B, pp. 295-297.
Kamehameha Schools. Explorations/ Ho'omāka'ika'i, various years.
King. King's Book of Hawaiian Melodies, p. 30.

Teacher preparation:
Write the words on a song chart so the children can see all of the words.



## ART

2. Creating a Hawaiian environment in a terrarium.

a. Have the children pair off and plan terraria that will reflect a fern/lichen environment similar to the one which could have existed before western contact - i.e., using indigenous and Polynesian-introduced plants.

Materials needed:
Fertilizer
Fish tank or gallon bottle with cover
Soil, humus, black porous rock
Variety of ferns, mosses, etc.
Variety of rocks

b. Have available some pictures of Hawaiian forest areas. Two sources are:
1) Carlquist. Hawai'i A Natural History.
2) Lamoureux. Trailside Plants of Hawai'i's National Parks.

Point out some of the familiar plants and suggest some familiar locations in the community in which these plants may be found. Remind them to practice good conservation techniques when collecting plants.

c. Encourage the children to set up their terraria artistically so that there is no overcrowding; stress a variety in height, color and texture of plants and rocks.



## ENVIRONMENTAL EDUCATION

5. Environmental research:
Have the children collect huakanu from the school yard, the neighborhood, and other places. Ask them to think of their own methods of collecting huakanu. Have them suggest some ways they have experienced:

Dragging flannel cloth over a field of seed-bearing plants.

Walking through a field with knee socks and no shoes.

*Note: remind the children about not harming the environment.

a. Ask the children to classify all of their huakanu by the means of dispersal by the parent plants.

b. Introduce dispersal terms such as:
airborne
clinging
dropped
propelled

c. Encourage the children to form mini-'ohana and establish some system of classification.

d. Discuss and share the results of the group hana (work).

e. Ask:
1) What do the seeds in each category have that allow them to be dispersed similarly?

## SOCIAL STUDIES

I. Using a map of the Hawaiian Islands (Appendix Unit I-D, p. 25), conduct the following activities:

1. Name the four larger islands. (Hawai'i, Maui, O'ahu, Kaua'i).
2. Name the four smaller islands. (Moloka'i, Lāna'i, Ni'ihau, Kaho'olawe)
3. Which islands are the most heavily populated ? Why ? (See if they are able to relate population density to economic activity/job availability.) See Atlas of Hawai'i, University Press of Hawai'i, p. 101.

| | 1973 | 1983 |
|---|---|---|
| O'ahu | 630,497 | 762,534 |
| Hawai'i | 63,468 | 92,053 |
| Maui | 38,691 | 62,823 |
| Kaua'i | 29,524 | 38,856 |

4. Introduce and define the terms latitude and longitude. Locate the eight islands by latitude (19°N - 23°N) and by longitude (155°W - 161°W). Build more map reading skills by locating each island by latitude and longitude.
5. Name the major city/town and major mountain(s) on each island. Use the Hawaiian studies Nā Ki'i Ho'ona'auao charts or see Appendix Unit I-E, pp. 26-33.
6. Review the concept of direction and the terms north, south, east and west. Write the symbols for the four cardinal points in the appropriate places on the island maps, Appendix Unit I-D, p. 25.
7. Review directional terms with the children. Explain that locally we find our way around not only by north, south, east or west, but by ma uka, ma kai and by reference place names.



## SCIENCE

list of classroom locational activities for the students using the furniture and articles in the classroom as location points.

E.g.,
Locate the teacher's desk.
Ans: 30° North latitude
20° East longitude
Locate Kekai's school bag.
Ans: 5° North latitude
15° West longitude

e. This can be a more cooperative effort by having children submit tasks. Encourage the children to brainstorm some tasks and add them to the master list.
f. Alternate this activity by giving coordinates and having students identify object located there.

5. Extend this activity to the school yard Sketch a diagram of the school grounds and draw in latitude and longitude lines. Have the children locate fixed places on the diagram.
E.g.,
Locate the school office.

6. Another extension is to diagram the neighborhood. The children should become very proficient in diagramming by this time and could perhaps take a certain section of the community and diagram it. Have them write five to ten locational activities to be used with their diagrams; have each mini-'ohana exchange diagrams with another mini-'ohana and do the activities.

7. See Appendix Unit I-F, p. 34 for an extension activity using longitude and latitude lines.



## LANGUAGE ARTS

4. Cut out newspaper articles and share the highlights.

5. Read stories to them about children from different countries. These can be found in the school libraries and in the World Book Childcraft Library of books. Have the children listen for similarities and differences in cultural patterns.

6. Start a doll corner and have the children bring dolls they may have at home that represent different countries in the world.

E.g.,
American regions
China
Japan
Korea
Mexico
Pacific Islands
Philippines
South America
Vietnam

Place these dolls on a display table and have the children locate the countries they represent on the globe.

7. Have available a set of encyclopedias to which the children may refer to find more information about lifestyles in other countries.

D. Describing the natural phenomena in Hawai'i with the proper Hawaiian names.

As the study of the geology of the islands proceeds in science, introduce the Hawaiian vocabulary for the natural phenomena.

## MUSIC

a. Have available a picture of King Kalākaua and share some excerpts of his accomplishments other than being a composer of songs. Two excellent sources to use are:

Allen. Hawai'i's 'Iolani Palace.
Mrantz. Hawaiian Monarchy.

b. Introduce the term "National Anthem." Talk about what this term means.

c. Have the children sing the National Anthem of the United States, "Star Spangled Banner." Listen to the words, making sure that the words are correct.

d. Have them sing "Hawai'i Pono'ī" without looking at the chart. Listen for pronunciation and voice quality. Work on those parts of the song that sound incorrect. Point out key Hawaiian words like:

ihe - spear
ke ali'i - the chief
mō'ī - king
nānā - look

Explain that this song is Hawai'i's State Anthem.

e. Discuss the rhythmic patterns of both anthems.
Ask:

1) Are they similar? (no) Have the children clap the rhythm.
2) Are the meters of both songs the same? (yes)



## ART

d. Invite other classes to visit. Have the children share the Hawaiian names of plants.

3. Pulu niu (coconut fiber) craft. A variety of shapes and figures can be made from the fiber of the coconut tree. Ask the children to bring in large pieces of fiber.

Other materials needed:
Glue
Hawaiian print scraps (material)
Nī'au (coconut leaflet midribs)
Scissors
String
Variety of dry materials
Variety of seeds, e.g., kamani
Wire

See pp. 22-25, Resource Units in Hawaiian Arts and Crafts for a few suggestions. Allow the children to use their imaginations in the creation of dolls, figures, shapes and other things using the pulu niu.

4. Seed craft. Using the seeds the children brought to class, (see environmental education lesson A-5, p. 13) plan a craft that can be done by the children. Some suggestions are:

One suggested activity is to polish a kamani seed. The false kamani seed is round and is enclosed in a pod. It is often polished by crafts people to decorate key chains and to hang from neck chains.



## ENVIRONMENTAL EDUCATION

2) Why is it important that seeds get dispersed?
3) How far can seeds be dispersed in each of the methods we discovered or researched?

6. Encourage the children to look for seeds that have unusual methods of dispersal.

a. Present the niu (coconut) to them. Have them handle the niu and feel its weight.

b. Ask them to predict the weight of niu and then tell how the niu got to Hawai'i. Write their predictions on a wall chart. (Brought by Polynesians)

c. Research:
Have the children research the dispersal method of the niu. Encourage them to look for legends about niu and to share them with the class.

d. Show the children a film about the niu. See 16mm Film Catalog 1982 OIS/Multimedia. DOE, RS82-3107, August 1982, "Legend of the Niu".
1) Preparation:
Have the children create a legend of their own about how the niu became one of the plants that reached Hawai'i.

## SOCIAL STUDIES

E.g.,
Honolulu - 'Ewa, Waikīkī
Kaua'i - People might say "on the Kapa'a side of Wailua" as opposed to "on the Līhu'e side of Wailua."
Hawai'i - Kaūmana is ma uka of Rainbow Falls and Hilo side of the Wailuku River.

8. Make up more practice exercises for the children using your own island area and place names. Have them locate well known places in their community using local directional terms as well as north, south, east, and west.

E.g.,
Locate: Community center
Medical building
Parks
Restaurants/snack shops
Supermarkets/stores

J. Using a large wall map, have the children locate places in the news. Give them the coordinates for latitude and longitude and have them determine the name of the country where the newsworthy place is located.

K. Run off Appendix Unit I-Jl, p. 41 for each student. Locate the Hawaiian Islands and have the children note the latitude or location above the equator.

1. Talk about the weather in Hawai'i. Have the children describe the kind of climate we have in Hawai'i.

E.g.,
Constant temperatures
Dependable northeast trade winds
High humidity
Mild winters
Moderate ocean temperatures

## SCIENCE

C. Becoming more skillful in mapping skills

1. Locate a detailed map of your island. See Atlas of Hawai'i or tourist brochures. Have the children read these maps for information.

E.g.,
Identify the natural features

a. Find all the rivers
b. Locate the names of the mountains
c. Locate the bays and/or harbors, lakes
d. Identify the peninsulas and/or off-shore islets.

See appendix Unit I-G, p. 35 for a profile of the Hawaiian Chain.

2. Prepare a transparency of the Hawaiian Chain and conduct an inquiry lesson. The children should understand that the chain extends for a distance of more than 1,500 miles.

3. Have available:
Atlas of Hawai'i
Ballard. Exploring Our Living Planet, pp. 108-109
Carlquist. Hawai'i A Natural History
MacDonald. Volcanoes in the Sea

See Appendix Unit I-H, pp. 36-39 for information pertaining to Hawaiian geology.

a. Show the children some selected pictures of the Hawaiian volcanoes from the above references.

## LANGUAGE ARTS

1. Using the detailed map mentioned in science, introduce the Hawaiian language lesson using the following pattern: He aha kēia?/What is this? He (kahawai) kēia. / This is a (river).

awa - harbor
kai kū'ono - bay
kuahiwi - mountain
loko - lake, pond
lua pele - volcano
'anemoku - peninsula

Refer to Pūku'i's Hawaiian Dictionary for further translations of natural phenomena as needed. Also refer to the General Appendices of this guide pp. 237-246 under the "Nature" section of each grade level for more terms.

E. Learning more about the community by exploring.

1. Using the map the children contributed to in social studies, have them think about things they want to learn about their community. List these things on a chart and plan how to accomplish them.

E.g.,
a. If there is a sugar mill operating in your community, the entire class or a small group accompanied by parents may go and visit it.

b. Another small group may visit a place where a parent works such as a shoyu or tofu factory, a cement quarry, a pig farm or a hotel.

## MUSIC

f. Motivate the children to listen to the chords that you play on the autoharp as they sing the song softly. Have them raise their hand each time you change to another chord.

4. "Hawai'i Aloha"

See Appendix Unit I-M, p. 48. This song is being sung by many groups in Hawai'i at the termination of their gatherings. A recording of the song can be found in: Hawai'i Aloha, LP, Waikīkī Records
Music of Hawai'i, Vol. I, LP, by Jack De Mello.

a. This is a song that can be taught by a kupuna. The interpretation of the song should be clearly explained to the children so that the song is sung with the aloha the words seek to express.

b. Many of the children have probably heard the song before and have learned some of the words. As the song is taught, introduce each line carefully being sure that the words are pronounced correctly.

c. Listen carefully to the first line of the first verse and last line of the chorus as these two lines are often sung incorrectly.

E Hawai'i, e ku'u one hānau e
(The tendency is to sing home.)

Mau ke aloha no Hawai'i.
(The tendency is to sing aloha e.)

d. Use the 'ukulele as an accompaniment.



## ART

a) The pods need to be scraped off and the seeds sanded with fine sandpaper.
b) Use an electric drill to drill a hole through the two opposite ends of each seed.
c) Ask the children to bring some ripe kukui nuts to school. Roast them in a 300°F oven for ½ hour and then carefully dump them into a bucket of cold water to crack open. Put pieces of the inner kernels into cheesecloth and squeeze to draw out the oil.
d) Have the students oil their kamani nuts two or three times. A coating of lacquer may be sprayed over the oiled finish of the nut.

5. Braiding

Materials needed:

Colored yarn
Hau (if available) or raffia
Scissors

The Hawaiians used native materials from their environment to make cordage. The strongest rope was made from the inner bark of the olonā plant. The fiber of this bark was stripped and braided into cordage.

a. Cut lengths of colored yarn and give each student three different colors.



## ENVIRONMENTAL EDUCATION

2) Ask the children to share their creative stories with the class.
3) Show the film to the children and then have them discuss similarities and differences in their legends as they compare to the film. Point out some cultural aspects of the early Hawaiians as depicted in the film.
4) Discuss the importance of the niu to the Hawaiians long ago and compare it with its importance to the people of Hawai'i today.
5) Discuss the many uses of the niu. See Appendix Unit I-R, p. 54.

e. Ask the children to look around their homes for things made of the different parts of the niu plant.

f. Engage a community resource person to talk to the children about Hawaiian and other ethnic group uses of the niu and plan some demonstration lessons. School kūpuna are excellent resources for Hawaiian uses of niu.

Culmination:
Have the children make some of the crafts discussed in earlier lessons.

- Plan this activity with the district resource teacher in art and/or Hawaiian studies.

## SOCIAL STUDIES

2. Help them distinguish between weather and climate. Have them describe the daily weather and record it on a calendar so they can be more aware of weather patterns.
3. Have them identify other areas on the same latitude, e.g., Mexico. Ask:
   a) Does Mexico have the same climate?
   b) Is the daily weather similar to Hawai'i?
   c) Why ?
   d) Why not ?
   e) What are some other factors that contribute to Hawai'i's climate? (Have the children look at the map and study the wind patterns. Have them note the direction of the Northeast trade winds. Have them predict what happens to the cold north winds as they blow across the expansive Pacific Ocean which acts as a giant thermostat. See Appendix Unit I-J2, pp. 42-45. See also Atlas of Hawai'i, pp. 53-60.)
4. Continue this research about weather by having the children become weather watchers. Have them keep a daily record of weather changes in their community. If they have relatives living on another side of the island, have them contact them by phone to note the weather differences.

Culmination:
Plan a field trip to a weather station.



## SCIENCE

Ask:

1) How many of you have seen a volcano erupt?
2) Where do we have active volcanoes in our state of Hawai'i?
3) What causes these volcanoes to erupt? Let's predict. (Write the children's predictions on a chart.)

b. Have the children ask questions about volcanic eruptions they would like to have answered. Write these questions on a chart.

c. Read from Dunford, The Hawaiians of Old, pp. 1-6 and show the children pictures from other references including Feher's Hawai'i: A Pictorial History. Have the children discuss the readings and offer answers to the questions on the chart.

d. Display the two page map on pp. 108-109 of Exploring Our Living Planet. Point out the innumerable mountains in the sea, especially the Hawaiian sea mountains.

e. Flash a transparency of Appendix Unit I-I, p. 40 on the screen so the children can see the mountains with the tops of the eight Hawaiian Islands showing above sea level.



## LANGUAGE ARTS

2. Plan the investigation with the children and have them decide how the information can be shared with the rest of the class. The sharing may be in the form of a:

   Movie roll
   Poem
   Radio news broadcast
   Resource speaker
   Skit
   Slide show
   T.V. show
   Verbal report

3. Have the children compose a class letter requesting leaders and community people, besides parents and relatives, to contribute old snapshots and information about life in the community many years ago. This activity may lead to personal audiences with community leaders. Encourage the children to listen for problems that exist today due to the changes that have taken place in the community.

4. Set up another bulletin board entitled "Our Community Long Ago" and arrange old snap shots brought in by the students.

5. Discuss the changes with the children: Pro or Con.

6. Have the children project into the future by asking: If you were to become Mayor of our community, what would you do to make our community a better place.

## MUSIC

5. "If I Should Ever Travel" See Appendix Unit I-N, p. 50. The composer of this number, Dorothy Kahananui, co-wrote many songs about Hawai'i for children. Her compositions can be found in:

   The Music Hour. Hawaiian Edition. Silver Burdett and Company. This is the 1929 edition which is no longer available to schools unless it is already part of the library collection.

   a. Locate on a wall map the places named in the song.

   b. Sing the song for the children and have them learn all the verses.

   c. Using a wall map, have the children name other places they'd like to see.

   d. Have them compose another verse for the song.

6. "Hawai'i Nei" Same source as above; see Appendix Unit I-O, p. 51. This is a simple song telling of the beauty of Hawai'i.

   a. Go over the words in the song and have the children express what the words are describing.

   b. Have them create hula motions for the two verses.

   c. Sing the song for them and have them sing both verses.

   d. This simple song lends itself to creative composing by the children. Have them think of other aspects of Hawai'i that they love.



## ART

   b. There may be some children who know how to braid who can then be tutors.

   c. Teach the children how to braid using the colored yarn first. When they have had enough practice, have them braid raffia and use this as the cord on which to string the kamani nut. This can be worn around the neck or as a wristlet. Introduce the Hawaiian word hili (to braid). They may have learned how to braid in the lei making session mentioned earlier.

   Enrichment:
   This activity in braiding may motivate the children to braid other native materials such as coconut sennit. See Resource Units in Hawaiian Arts and Crafts.

B. Drawing scenes for a movie roll

   Materials needed:

   8½" x 11" drawing paper
   Masking tape
   Pentels

   1. Using the legends the children created in environmental education, have them plan a series of pictures to illustrate their stories. Motivate them to include elements in the environment that will enhance the pictures.

      E.g.,
      Birds
      Mountains
      Plants
      Trees, etc.



## ENVIRONMENTAL EDUCATION

- Ask the students to gather the materials.
- Source:
  Resource Units in Hawaiian Arts and Crafts, OIS/DOE, RS81-0719, pp. 20-59.

B. Plant growth and temperature

   1. Plan a field trip to a valley on your island to study the plant and animal life in a forested area.

   2. Plan another field trip to a beach area and observe the plants and animals there. Record the average temperatures in both places and the availability of rain.

   3. Set up a retrieval chart to show the similarities and/or differences in the two locations.

      E.g.,
      Amount of rainfall (see Atlas of Hawai'i)
      Elevation
      Names of animals
      Names of plants
      Temperature, etc.

   4. If feasible, select some plants that survive well by the kahakai (seashore) and plant them in a wao (forested area). Select some forest plants and plant them close to the ocean.

   5. Prediction:
      Have the children predict what will happen to the plants.

| SOCIAL STUDIES | SCIENCE | LANGUAGE ARTS |
|---|---|---|
| | f. See TAC Guidelines and Video Holdings List, 1982, RS81-2903, p. 62 for a video on the Hawaiian Chain, #0392-1. This video presents a visual tour of the chain of islands.<br><br>g. Discuss the formation of these Hawaiian Islands using Appendix Unit I-H, pp. 36-39. On O'ahu coordinate a study unit with Lorin Gill of Moanalua Gardens Foundation (telephone 839-5334). The Foundation provides excellent talks for children on Hawaiian geology. On Hawai'i, Maui & Kaua'i contact the Geography/Geology departments in the community colleges for information. Further information on Hawaiian geology is available in:<br><br>Atlas of Hawai'i, pp. 32-38.<br>Mitchell. Resource Units in Hawaiian Culture, pp. 18-26.<br><br>h. Plan a field trip to a volcanic area, active or inactive, to study rock formations or geographical features formed by volcanic action. | a. Have them prepare a short speech or,<br><br>b. Have them write a paper describing their feelings. |

## MUSIC

E.g.,
Ocean surf
Tall, swaying coconut trees
Waterfalls

e. Sing a translated version of verse one:

Nā ānuenue i ka lewa
Moani mai ke 'ala
Nā pua nani like 'ole
He mau moku nani

Culmination:
Have the children perform the songs they have learned in a planned program involving all the activities in this unit.



## ART

2. When the pictures are completed, have the children join the pictures together in proper sequence.

3. Have available a movie roll box and stage area for the presentations. Ask the children to share their legends using their movie rolls. After some practice they can be presenters to other classes as well.



## ENVIRONMENTAL EDUCATION

Ask:

a. Will they all survive?

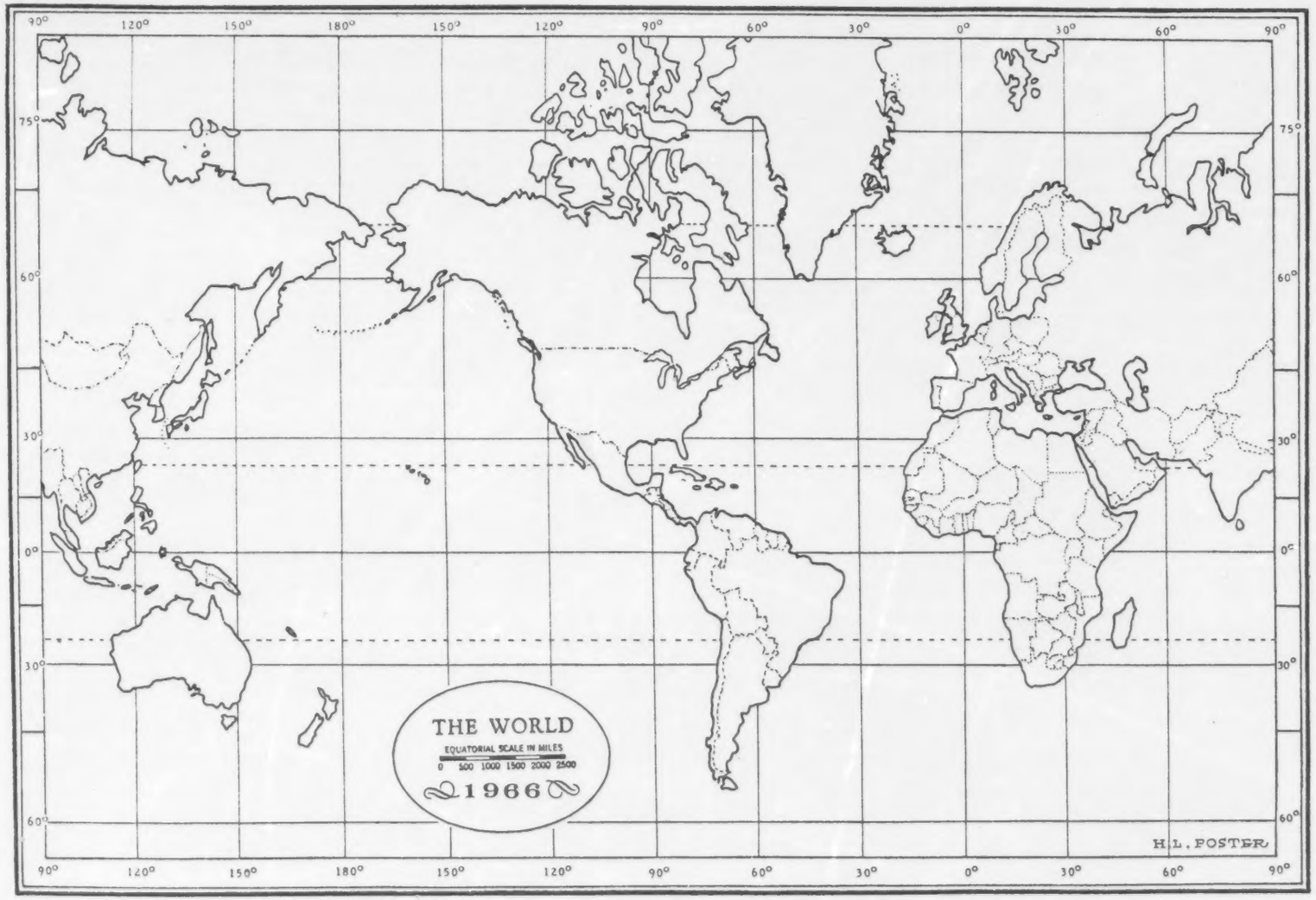
b. What changes, if any, can we expect?

c. Do plants take on different characteristics when we change their environment?

6. Have the children observe the plants as they grow and note any changes.

Culmination:
Take the children to the Bishop Museum to see the exhibits showing the evolution of plants and animals in Hawai'i.

MAP OF THE WORLD

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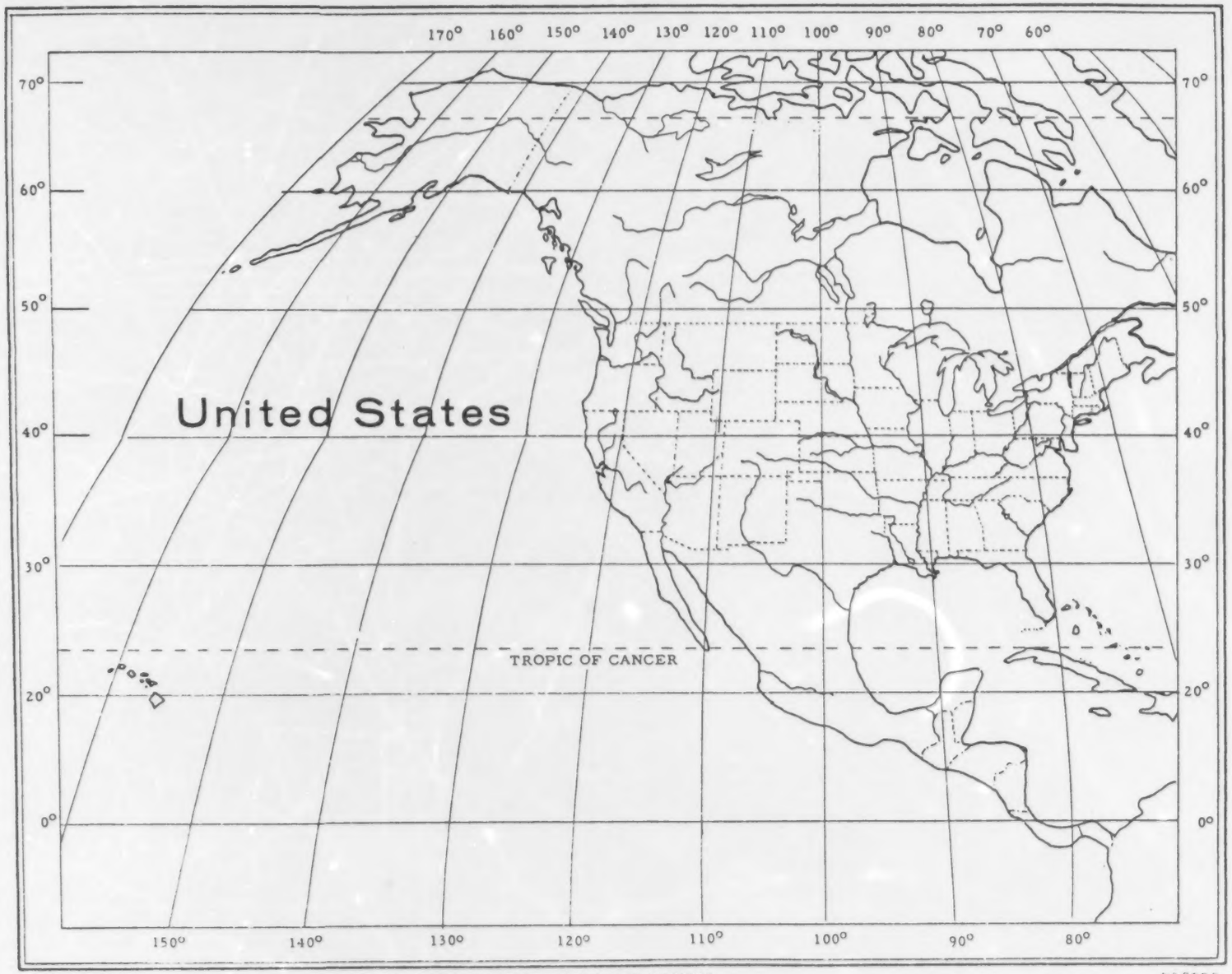


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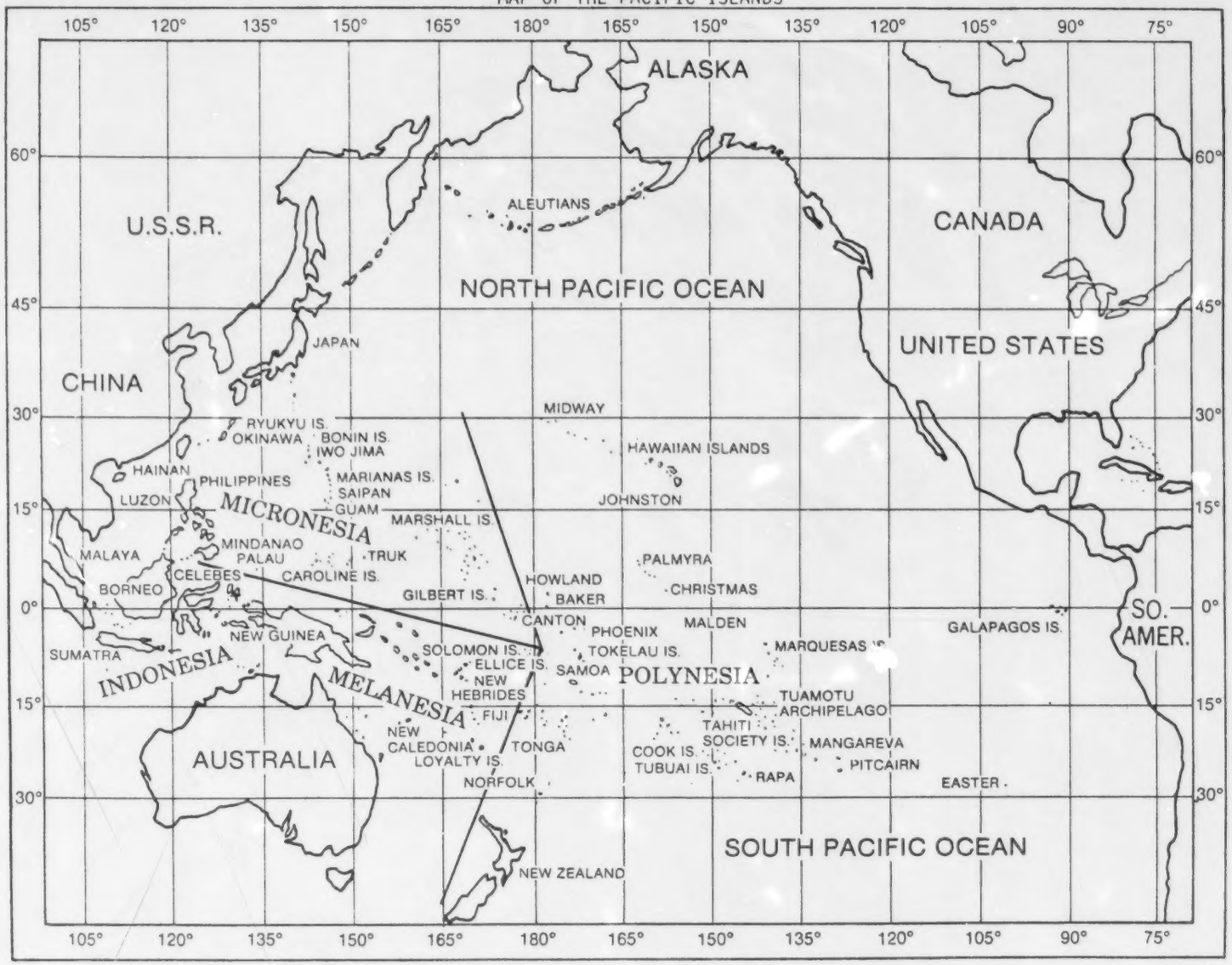
MAP OF THE PACIFIC ISLANDS




Source: Our Cultural Heritage, plate 3, DOE/OIS, TAC 72-4370, 1973

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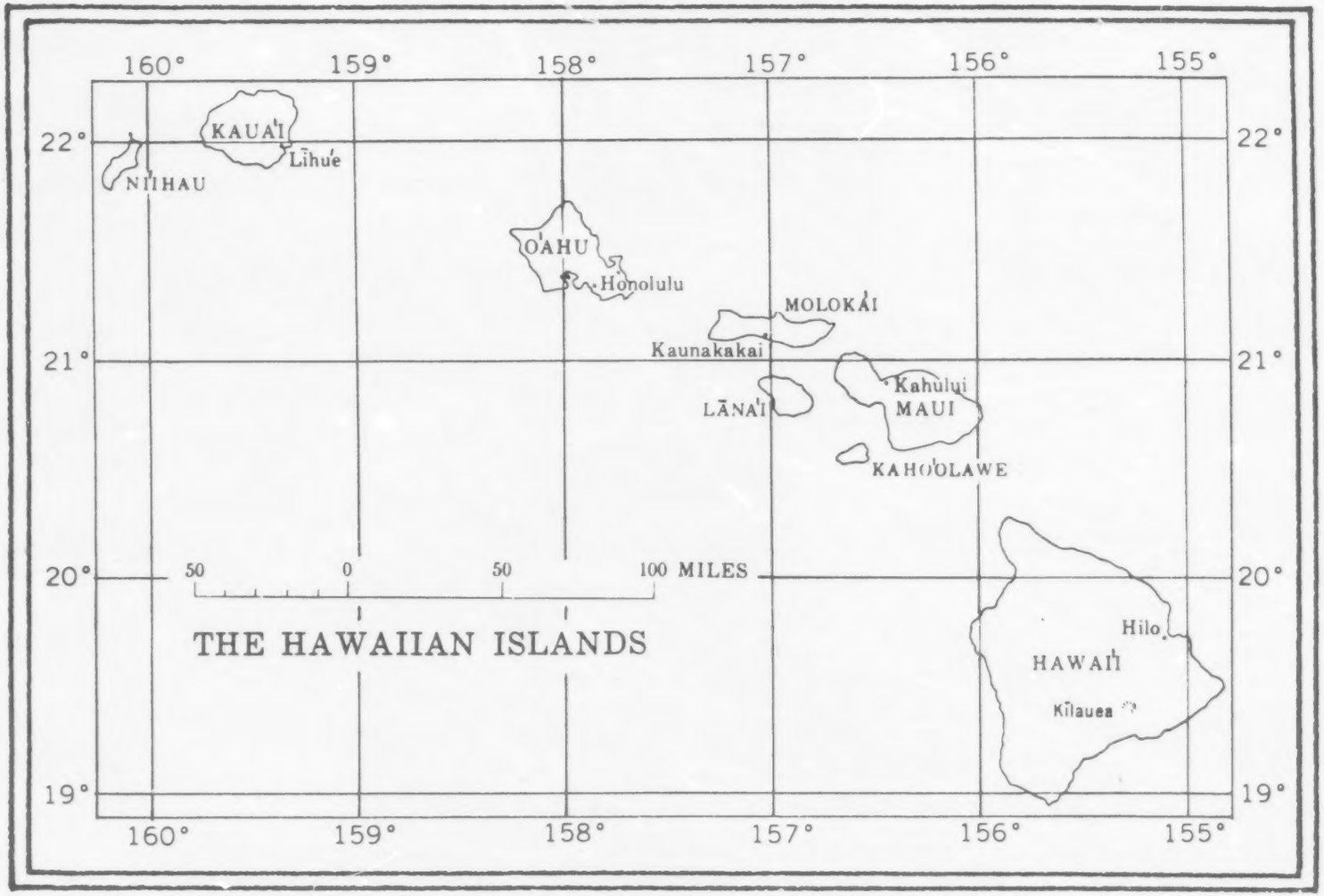
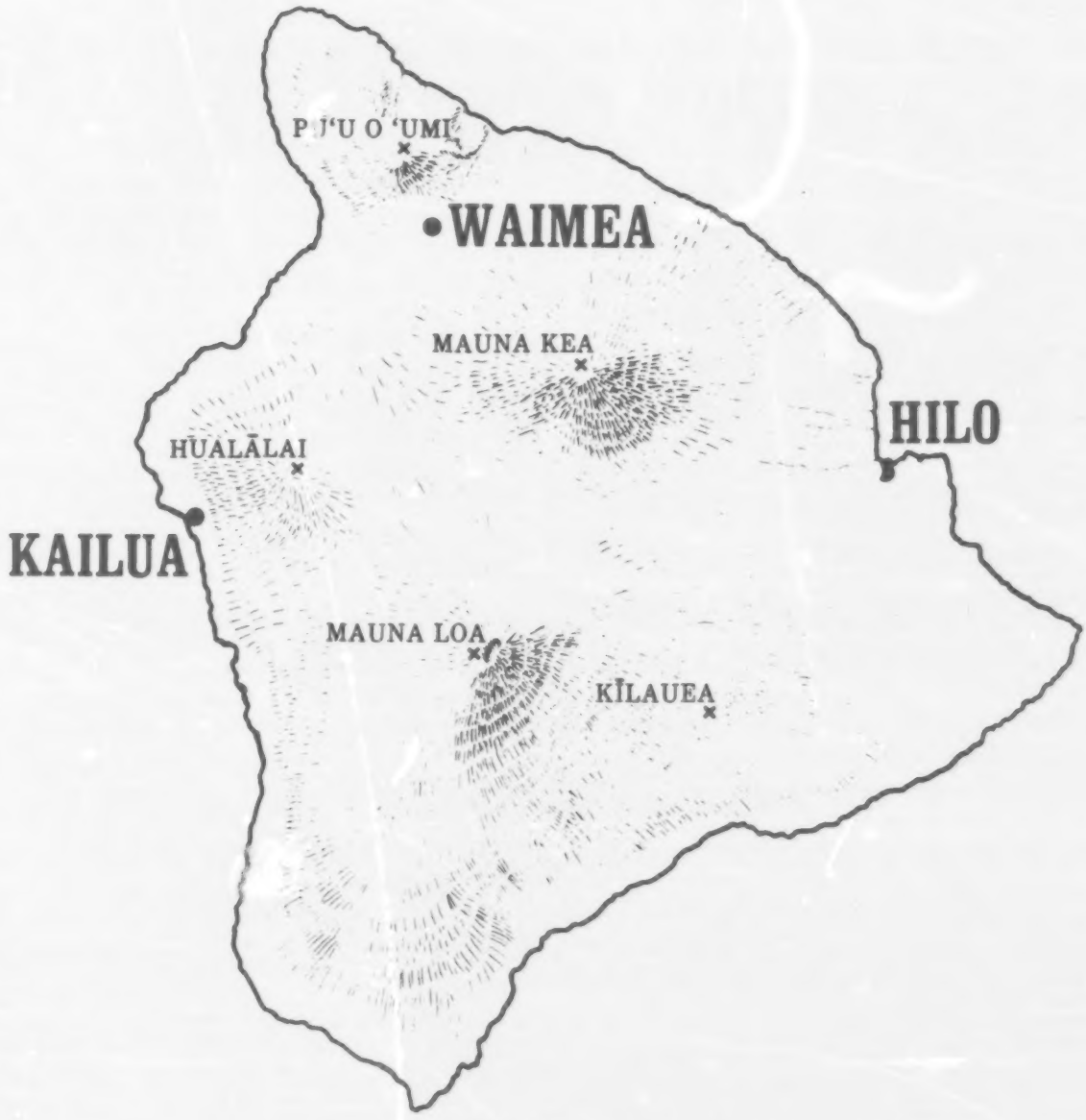
MAP OF THE HAWAIIAN ISLANDS




Relief & Outline Maps of Hawai'i. DOE/Office of Social Studies, 1966.

# HAWAI‘I




**WAIHO‘OLU‘U - ‘ULA‘ULA**
**LEI LEHUA**

26

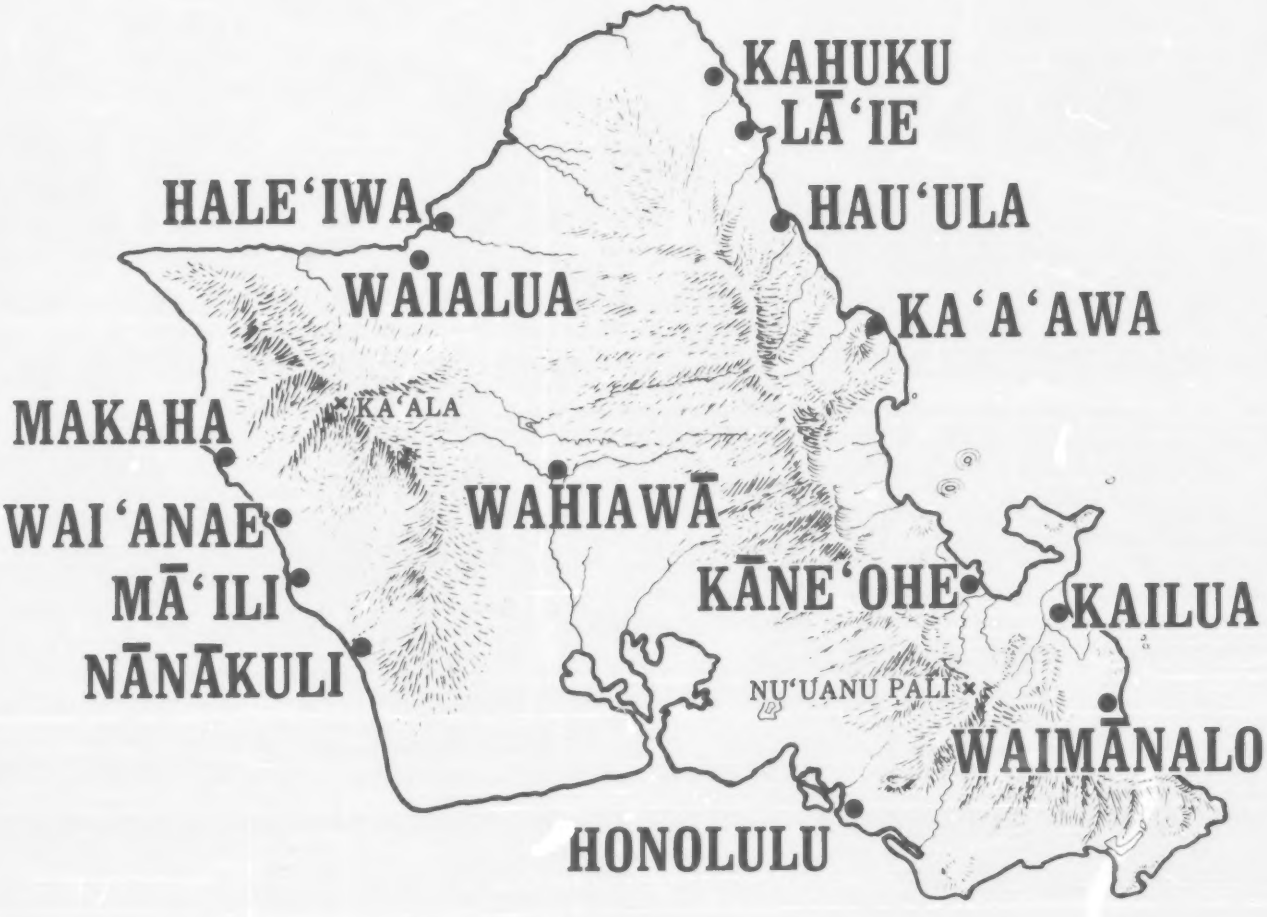
# MAUI

27

## WAIHO'OLU'U - 'ĀKALA
## LEI LOKELANI

Grade 3, Appendix Unit I-E

# O‘AHU

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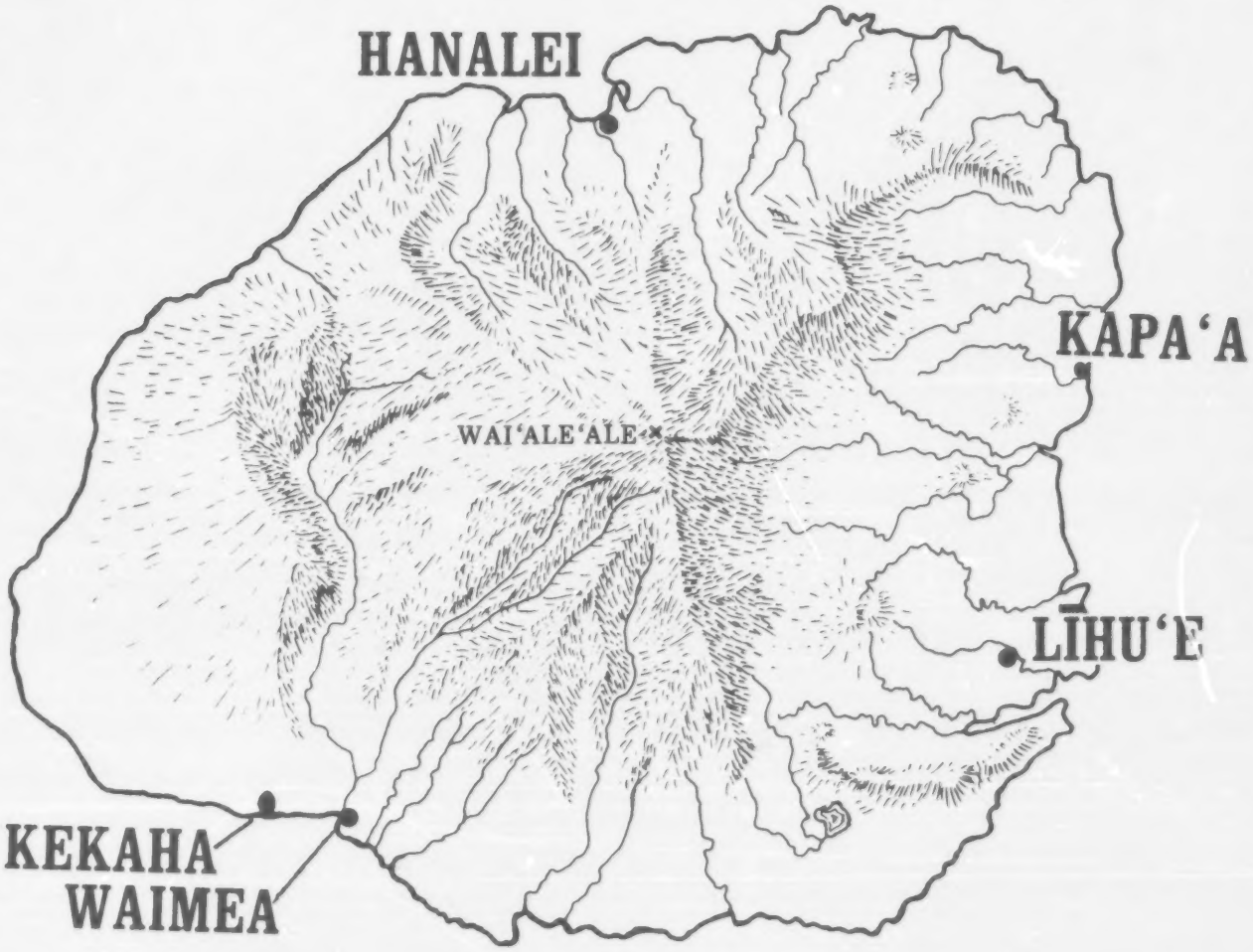
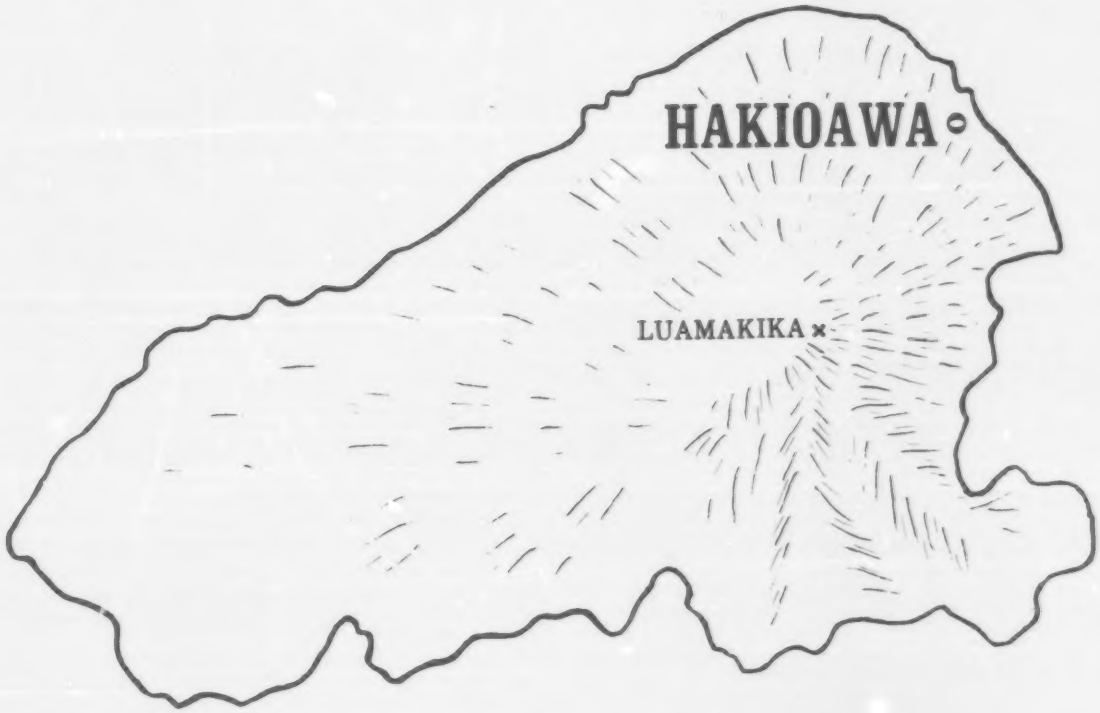
WAIHO‘OLU‘U - MELEMELE
LEI ‘ILIMA

# KAUA‘I




## WAIHO‘OLU‘U - PONI
## LEI MOKIHANA

# KAHO‘OLAWE

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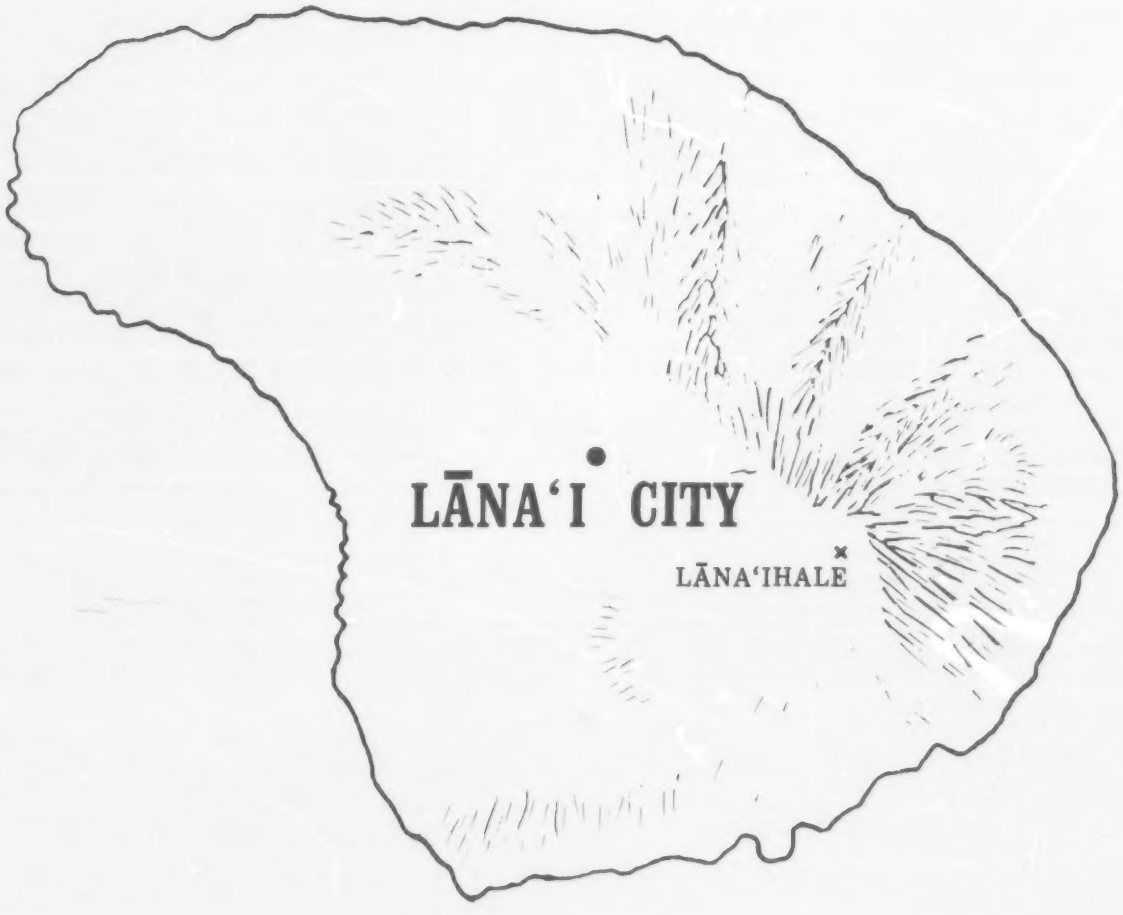
## WAIHO‘OLU‘U - HINAHINA
## LEI HINAHINA

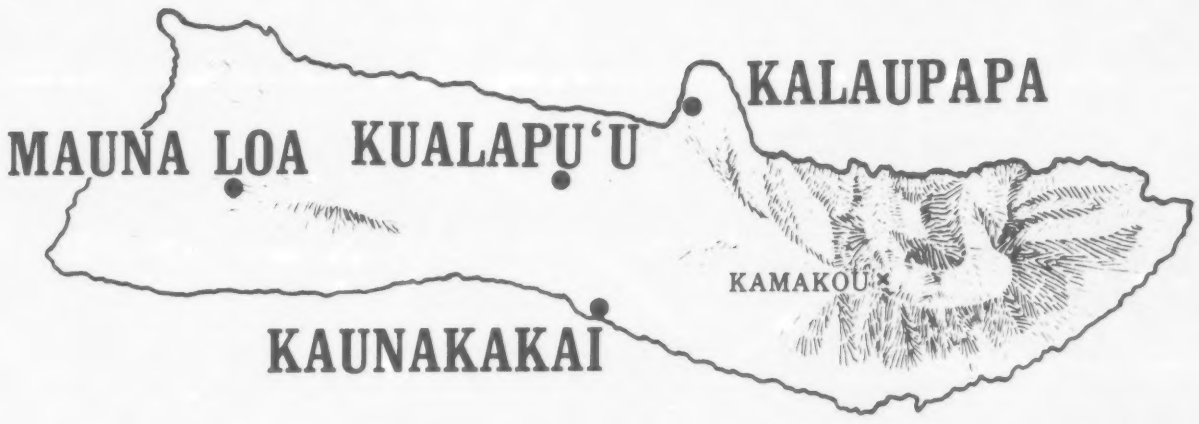
# LĀNA‘I






## WAIHO‘OLU‘U - ‘ALANI
## LEI KAUNA‘OA

# MOLOKA‘I

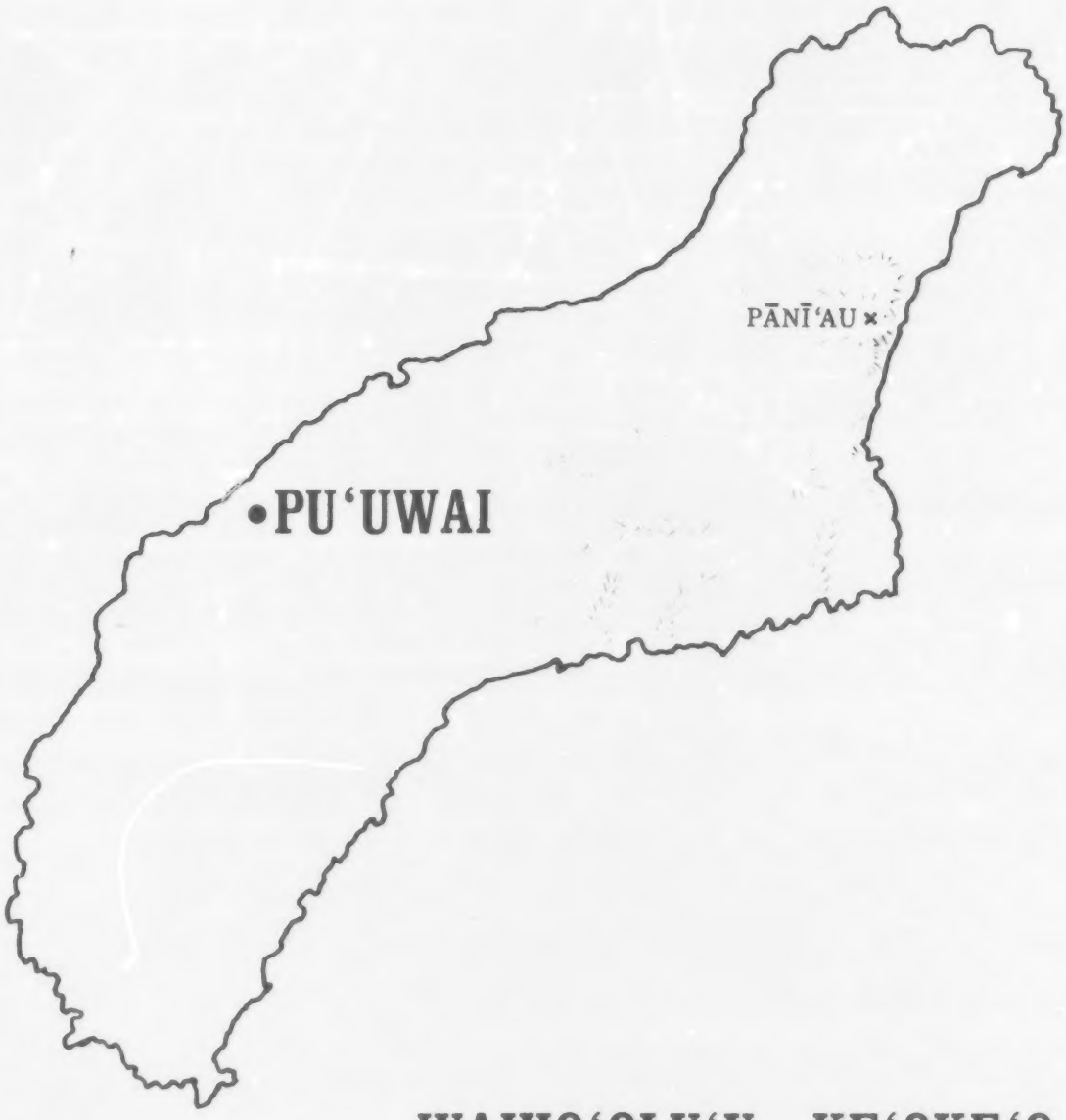



32

## WAIHO‘OLU‘U - ‘ŌMA‘OMA‘O
## LEI KUKUI

90

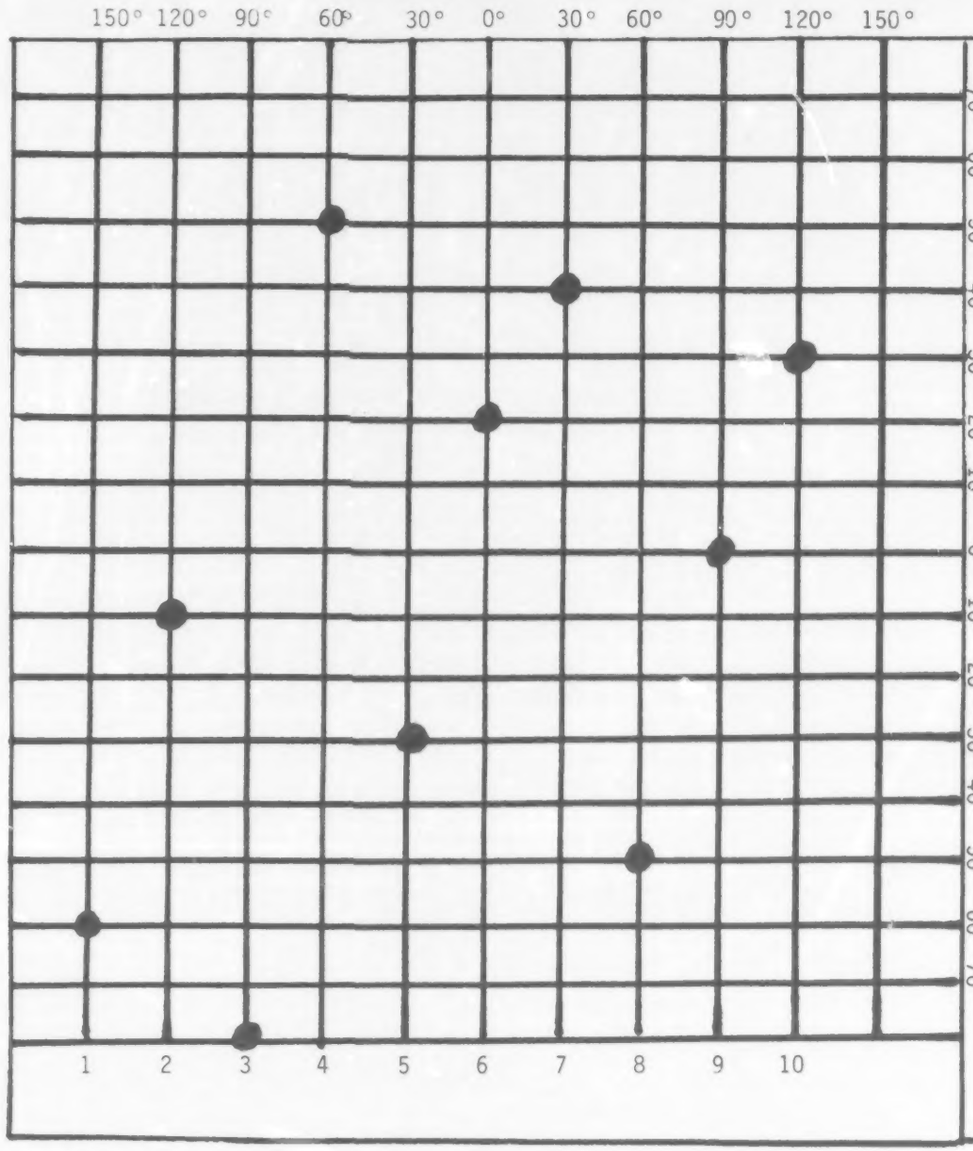
# NI‘IHAU




**WAIHO‘OLU‘U - KE‘OKE‘O**
**LEI PŪPŪ**

33

NAME_____ MAPPING (PRACTICE SHEET) DATE_____



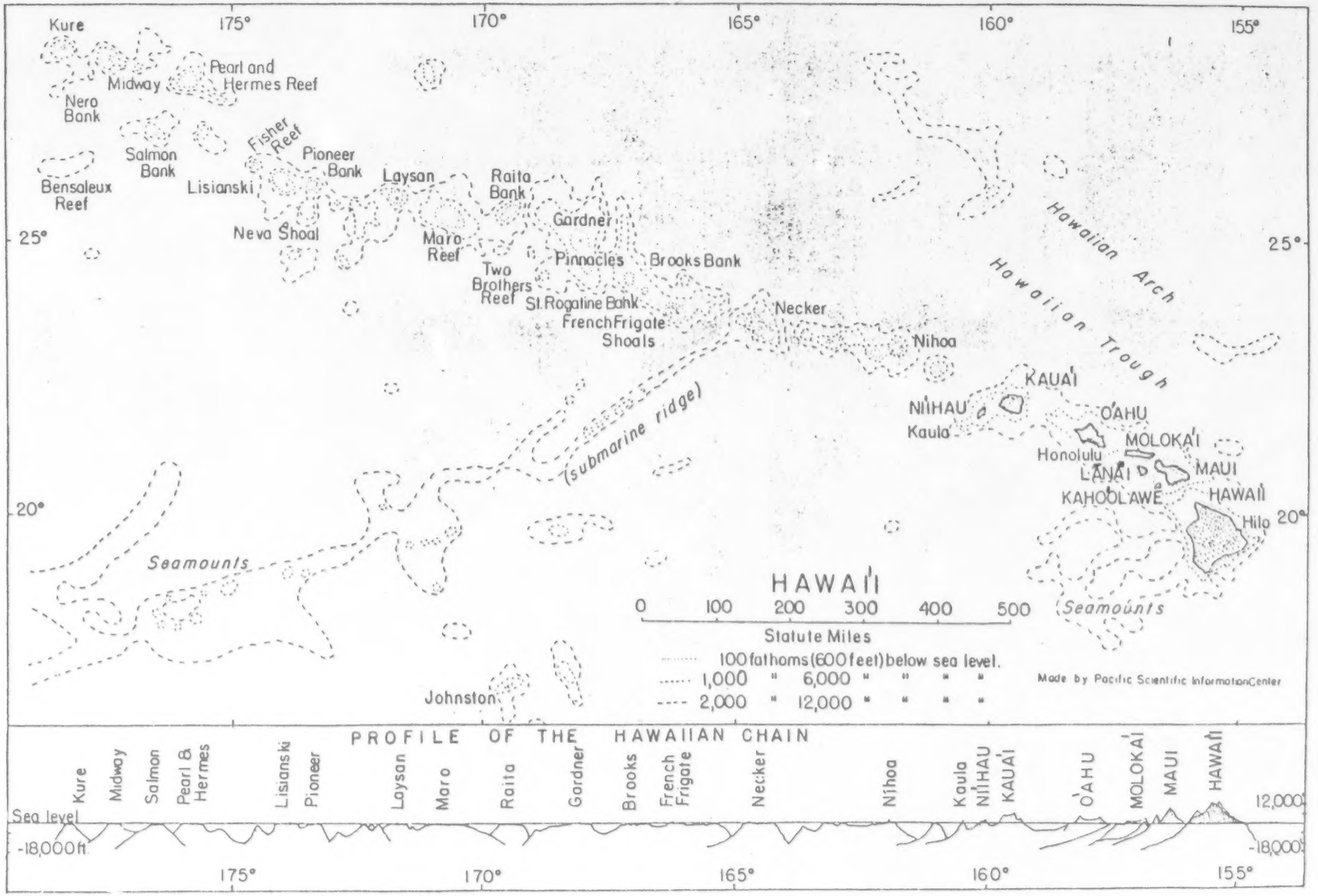

## LATITUDE AND LONGITUDE

### WORKSHEET

Note: Have students indicate cardinal directions with degrees of longitude, e.g., 20°N/60°W.

| DOT | LATITUDE | LONGITUDE |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

# PROFILE OF THE HAWAIIAN CHAIN




Bishop Museum/DOE Bulletin. "An Introduction to Hawaiian Geology," E.H.Bryan,Jr., undated.



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# HAWAIIAN GEOLOGY

Our Hawaiian islands are the tips of giant oceanic volcanoes that rise many thousands of feet from the bottom of the Pacific Ocean. All of the high islands of the Hawaiian island chain are relatively young in geologic age. There is no surface rock on the Big Island which is older than a million years. On O'ahu some rocks may be as old as two to three million years; on Kaua'i some rocks may be five or more million years old.

The northwest islands in the Hawaiian chain are low-lying sandy islands. The tiny island of Nihoa which is 150 acres has rocks dating more than 7 million years in age. Farther up the chain is a still smaller island, only 41 acres in size, called Necker. The rocks there have been dated more than 11 million years.

Moving farther up the chain to the tiny pinnacles of Gardner, we can see small tips of volcano rock. The islands have been almost completely eroded away. Beyond Gardner, there are no volcanic islands, only low-lying sandy islands like Laysan, Lisianski, Midway and Kure Islands. These islands are formed by coral reefs which have built up and covered the submerged tops and eroded parts of the former volcanic islands. Kure and Midway have been given tentative geologic dates of 20-25 million years. On the opposite end of the chain is the Big Island, 4,000 square miles, with rocks no older than a million years. It still has active volcanoes.

Scientists believe that the earth's crust is made up of a series of segments or plates which are moving into each other, apart from each other or alongside each other. This theory helps explain volcanoes, earthquakes and mountain building as well as the creation of our own Hawaiian Islands. The Pacific Ocean lies upon a large segment of the earth's crust called the Pacific Plate, which is moving towards the northwest. As it moves, it is moving over a volcanic hot spot of activity in the middle of the Pacific. This hot spot is located underneath the Southeastern part of the Big Island today and is effecting the formation of a new volcanic cone under the surface of the ocean to the Southeast of the island of Hawai'i.

In the past, the Pacific plate has moved over this hot spot creating a series of volcanoes in sequence. As the plate moves over the hot spot, a volcano is built until the plate eventually moves away, at which time the volcano becomes dormant, eventually goes extinct and no longer erupts. The volcano gradually erodes and becomes submerged beneath the ocean.

Scientists believe that the islands were built by a series of lava flows and fire fountains of ash and cinder. These lava flows built up giant shield volcanoes that continued to grow with each eruption. Eventually part of the summit region collapses to form a caldera. The volcano goes into a long period of dormancy while stream and wind erosion and wave action carve away or erode parts of the volcano above sea level.

Meanwhile millions of tiny animals and plants build up coral reefs that fringe the islands. The result of erosion and reef growth going on at the same time is the characteristic "flat" islands found in the northwestern part of the state.

## How Lava Forms New Land

Volcanic matter in a molten state can spatter and spew ash and cinder in explosive fire fountains or ooze out as flows. These flows are classified into two types; one is called pāhoehoe. It is very hot and fluid and when it stops moving, it cools, solidifies and takes on a ropey appearance. The other type of flow is called 'a'ā. This type of flow loses gas more quickly and has a cooler temperature; therefore, 'a'ā has a clinky, jagged surface, making it difficult to walk on when it has cooled.

When molten material reaches the surface and is spurted

out through a constrictedvent, it pours out as ash and cinder, rather than lava, and is shot into the air, sometimes several hundred feet forming cinder cones when they fall. One example of a cinder cone is Koko Crater on O'ahu. It is an example of a late-stage eruption, just as Diamond Head and Punchbowl are. These land features were formed by giant fire fountains of ash and cinder that burst through the rock.

During the warm interglacial period, the sea rose to submerge much of the coastline of O'ahu. Later, during a glacial cold period, the sea level receded exposing much of the coastline again. Now during the present warm interglacial period, the sea level has again risen and we have the present coastlines of our islands.

Recently, scientists have been probing into the ocean and have found what they believe is an active volcano that has built up over several thousand feet from the bottom of the ocean, but is still a few thousand feet from the surface. Eventually more lava flows will build up on this submarine volcano until it too may reach the surface and become the next Hawaiian Island which has been named Lō'ihi (long or tall).

By Māhealani Pescaia

References:

Atlas of Hawai'i. Department of Geography, University of Hawai'i-Mānoa, University Press of Hawai'i, Honolulu, 1973.

Bryan, E.H. "An Introduction to Hawaiian Geology," Bishop Museum Bulletin, undated.

Mitchell, Dr. Donald K. Resource Units in Hawaiian Culture, Unit 3, The Kamehameha Schools, 1982.

Moanalua Gardens Foundation, Inc. "Understanding Our Geology," Lorin T. Gill, 1982, unpublished working papers.

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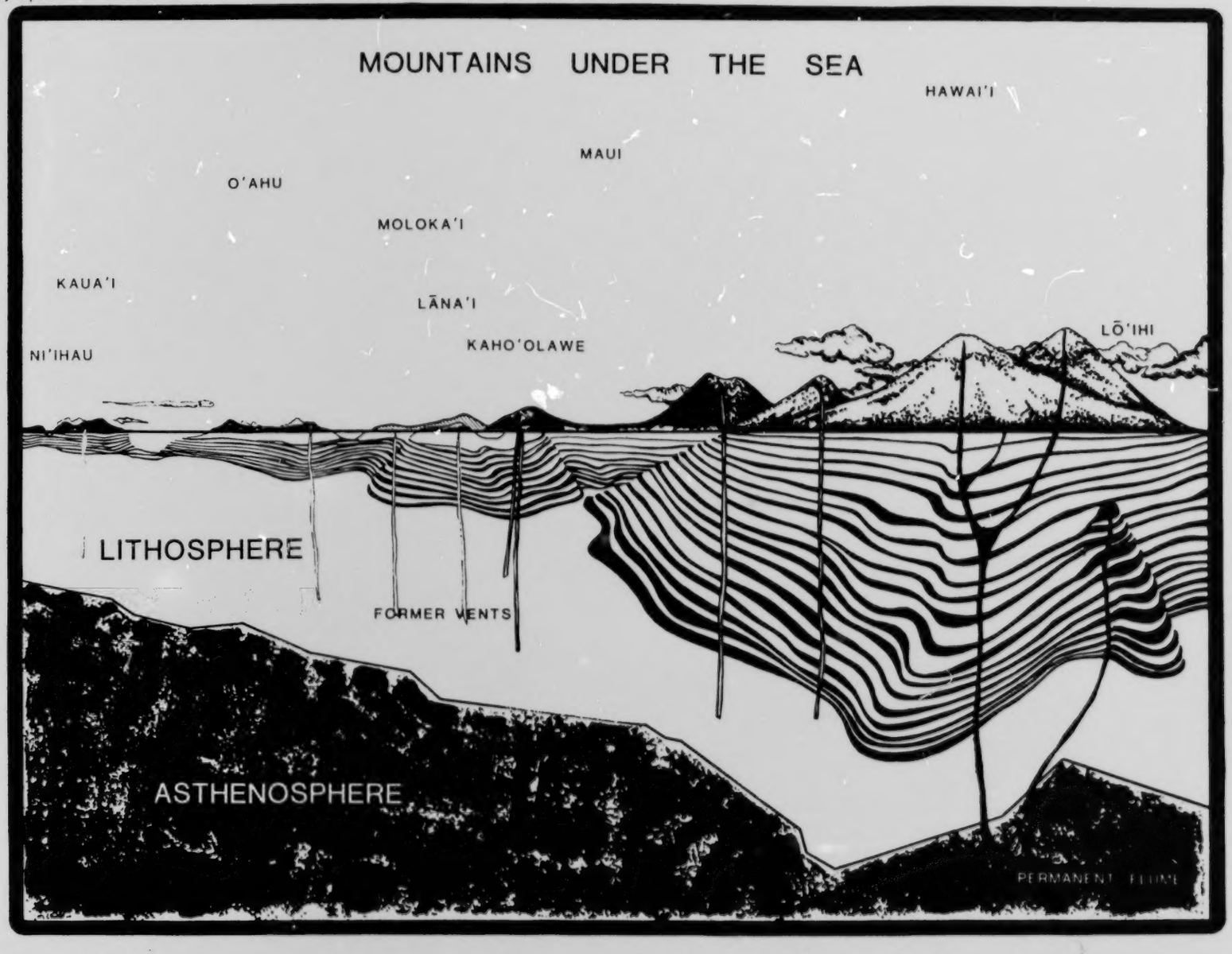
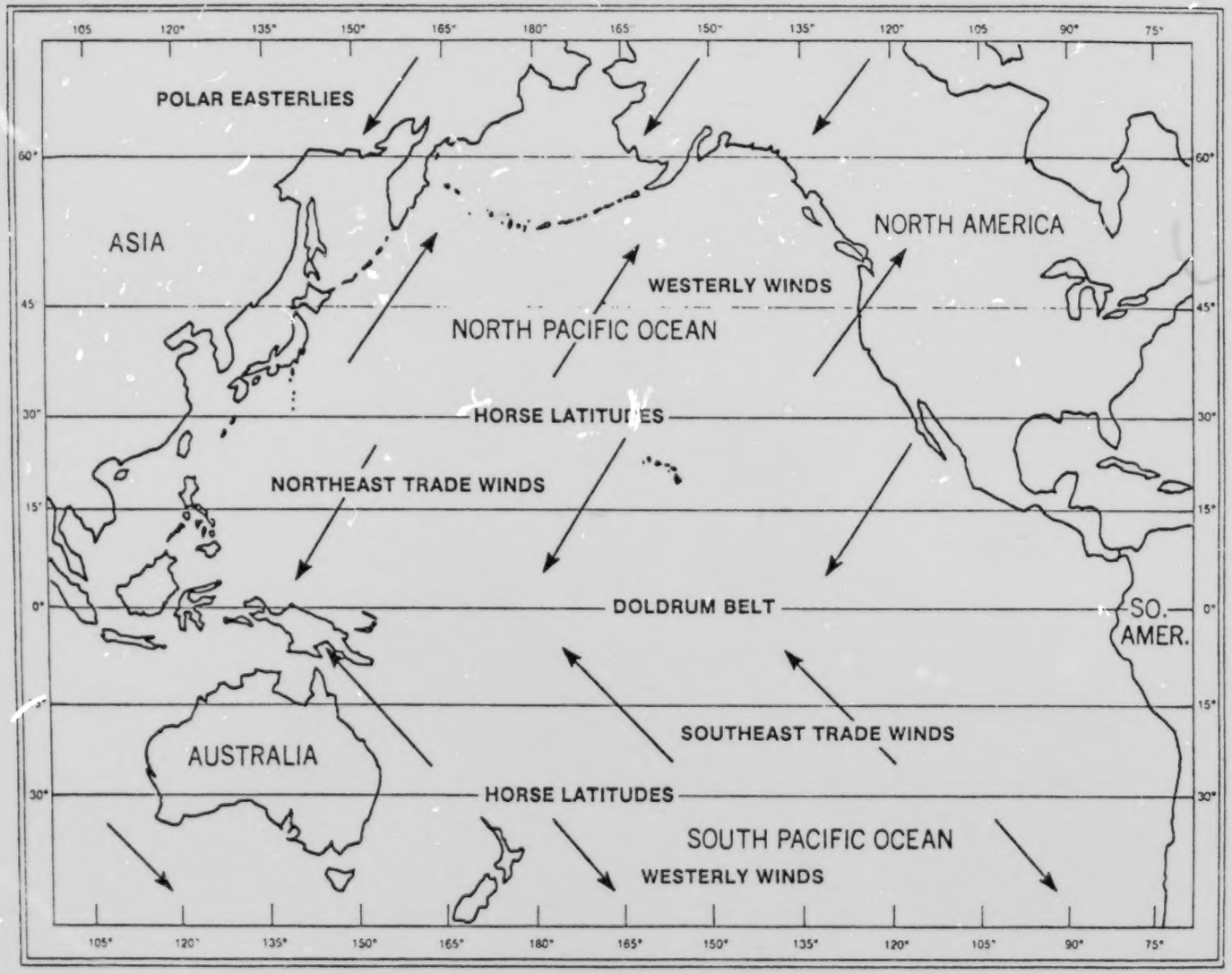

MOUNTAINS UNDER THE SEA
HAWAI'I
MAUI
O'AHU
MOLOKA'I
KAUA'I
LĀNA'I
LŌ'IHI
NI'IHAU
KAHO'OLAWE
LITHOSPHERE
FORMER VENTS
ASTHENOSPHERE
PERMANENT PLUME

Pacific Winds




Our Cultural Heritage/Hawai'i, plate 18, DOE/OIS, TAC 72-4370, 1973.

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# UNDERSTANDING OUR WEATHER:

Hawai'i's weather is the result of the interaction of four basic factors: our latitude within the tropics, the surrounding ocean, our location near the great Pacific anticyclone or high pressure area that so frequently occupies the eastern Pacific, and our mountainous terrain. The resultant weather may be described as having two seasons: the kau, or dry season, is from about May to October; the ho'oilo, or wet period, from about November through April.

LATITUDE affects us by providing a warm and relatively uniform temperature throughout the year. The sun passes directly overhead twice a year on its way to and from the Tropic of Cancer. At noon, the sun is never more than 45 degrees from the zenith, even on our shortest day. There is only about a two-and-a-half-hour difference in length between our longest and shortest days. The energy received from the sun, therefore, is more constant throughout the year than in the temperate zone.

THE SURROUNDING OCEAN exerts a moderating influence on our climate. The sea warms up and cools more slowly than the land. Consequently, our warmest time of the year, September and October, is some two months later than when the sun is overhead in June and July; our coldest time of the year comes in February, some two months later than our shortest days in December. The ocean, with its greater resistance to temperature change, modifies to a more moderate temperature the warm and cold air masses that may approach Hawai'i. As an example, winter cold fronts reaching us from Siberia or the Polar seas have been considerably warmed before they arrive here by the ocean over which they pass en route.

THE PACIFIC ANTICYCLONE is a large and relatively stable area of high barometric pressure usually centered to the north and east of the Islands. It moves somewhat northward during the kau and back toward the south during the ho'oilo season. The air flowing "downhill" out of this high pressure area crosses Hawai'i as our cooling northeasterly trade wind.* If Maui had placed us much farther to the west than he did, we would not as frequently enjoy this equable trade wind weather from the Pacific Anticyclone.

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STORM TRACKS. Low pressure areas moving eastward across the Pacific Ocean pass to the north of the Islands, farther away in summer, but sometimes near enough in winter to draw in winds from the south or southwest. The paths taken by these migratory "lows" are called the storm tracks.

KONA STORMS are those migratory low pressure areas that form west or northwest of the Islands during the winter season and which come close enough along the storm tracks to give us spells of cloudy, rainy weather and of south or southwest winds. These winds may be quite strong at times, especially where enhanced by terrain effects. Only rarely, however, do such storms actually pass over the Islands.

KONA WINDS are winds which blow from directions opposite to those of the prevailing northeasterly trade winds. They are of two types: those associated with KONA STORMS and those that occur when the trade winds die down and no other strong winds are present. The latter situation gives rise to the light onshore breezes and warm humid days usually referred to in Hawai'i as KONA WEATHER. In the absence of the trade or other dominant wind patterns, terrain takes over and diurnal effects prevail. During the day, the land warms more rapidly than the surrounding sea and the heated air rises, drawing in air from all directions and causing a "sea breeze: that blows onshore from the ocean to the land. At night, the land cools more rapidly than the sea and the wind reverses, producing a downslope and offshore nocturnal "land breeze". KONA STORMS, however, and the kona winds they bring are large-scale phenomena, not dependent on terrain, although local terrain effects may occur. These conditions are also sometimes referred to as "kona weather" When considering winds in Polynesia, there are really only the two directions: ko'olau, or windward, and kona, or leeward. When we say "windward" in Hawai'i, we mean the ko'olau side of the island which faces into the trade wind. Therefore, "kona" applies to wind coming onto the opposite shore. In Hawai'i, ko'olau is more northeasterly and kona more southwesterly. From Sāmoa in western Polynesia, the Tokelau (ko'olau) Islands are to the north and Tonga (kona) is to the south.

* Hō'eo (whistling) is a wind of Moanalua.

WIND SHADOW. The kona area of the Big Island sits in the wind shadow of Mauna Loa and Hualālai sheltered from the trade winds; therefore the diurnal/nocturnal wind regime of onshore winds during the day and offshore breezes at night prevails, day in and day out, except when interrupted by kona storms or heavy kona winds. Wind shadow is a factor that should weigh heavily in the discussion of how an area is to be developed.*

TERRAIN is the "fine tuner" of our local weather because it is the ground forms which shape, lift, distribute, block, and add velocity to the normal trades blowing over us. This weather, called orographic or mountain-caused, is characterized by the normal line of clouds along the summit of the Ko'olau and Wai'anae Ranges or by the cloud zone, from 2-5,000 feet, on the major mountains on the higher islands. This is the weather which, for example, gives O'ahu its rainfall distribution: heaviest just to the lee of the summits and diminishing leeward at a rate reflecting the ascent of the moist trade winds as they approach the windward coast, climb over the mountain ranges which lie in their path and then descend to leeward. One example of O'ahu's average annual rainfall distribution follows this pattern: at sea around our islands, the rainfall is about 25" per year; the beach at Kailua gets about 40"; Castle Junction at the foot of the Pali on the windward side, about 70"; at the top of the Ko'olau, just on the leeward side, it may reach 250"; at Hānaikamalama, Queen Emma's summer home in Nu'uanu, it's about 80"; and over downtown Honolulu, about 25-30". This distribution indicates that it's the upper forest zones on the leeward side of our summits which are the principal receivers of rainfall, and which are the most important areas contributing to the recharge of the ground water aquifer. These forest areas are still well-clothed with the shallow-rooted native forest which, with its attendant fern ground cover, has been demonstrated to be probably the most efficient aquifer cover we have. Rainfall in the lower, kona reaches of the island, while significant, is not as important as this ma uka area of heavier precipitation.

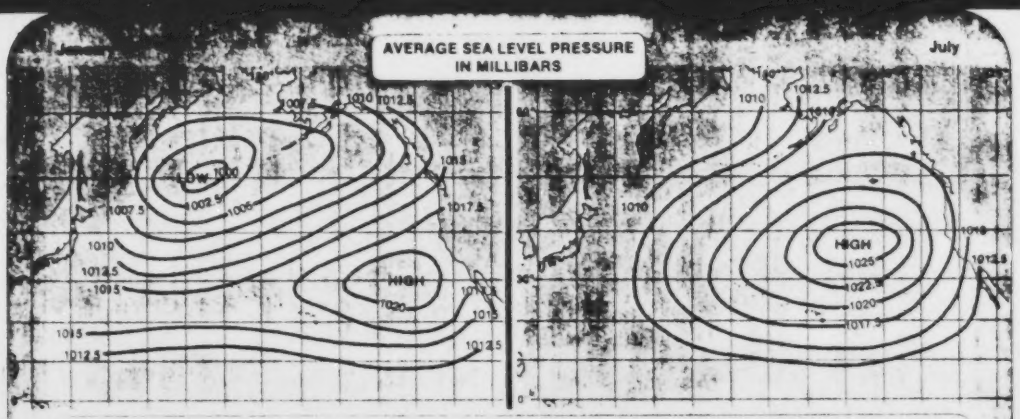
HURRICANES are the most dangerous of the weather systems that affect Hawai'i, since they combine the effects of violent winds, torrential rains and high waves and storm tides. Fortunately, they are uncommon in the Hawaiian area. In the past 50 years, only two have hit any of our islands -- Hurricane Dot (1959) and 'Iwa (1982). Kaua'i was the island hardest hit, although O'ahu sustained damage as well. 'Iwa was by far the most destructive storm to strike Hawai'i, causing more than $250 million in damage. Hawai'i's hurricane season extends from June through November, although hurricanes could also occur in other months.

Most of the hurricanes that approach Hawai'i have originated off the coast of southern Mexico and Central America. Occasionally, however, as in 'Iwa's case, hurricanes originate to the far south of the islands. Hurricanes form over the warm waters of the tropical oceans at times when favorable atmospheric conditions prevail.

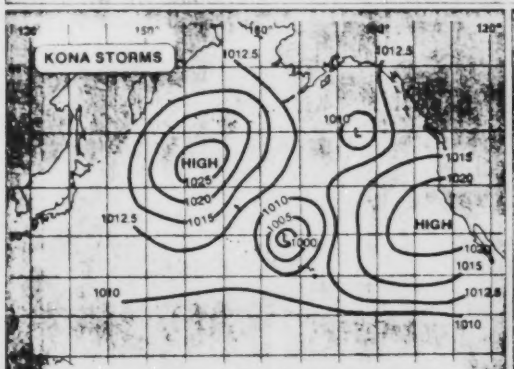
The interplay of topography, elevation, wind, sun angle and distance from the sea is responsible for the existence of multitudinous micro-climates. These exist, typically, in the various valleys, on slopes and ridges, coasts and heights, and wherever a significant change in exposure occurs. Micro-climates are one of the main factors responsible for the high speciation of the Hawaiian flora. Since micro-climates are relatively stable, year in and year out, mutation - occuring randomly over the millions of years - has had a high rate of survival. Unlike on continents, the new life form doesn't have far to go to find a climate suitable for it; adaptive radiation is enhanced. It is possible, in Hawai'i, to stand within a mile or two of all the known population of a certain species existing on the earth.

* From the above, L.T. Gill concludes that this wind regime allows a buildup of pollutants which could make that part of the Big Island more vulnerable to the development of a "Los Angeles-type" smog than anywhere else in the State. For example, a relatively unventilated international airport, with attendant support industries and increased auto emissions, could have serious consequences for the Kona District of the Big Island.

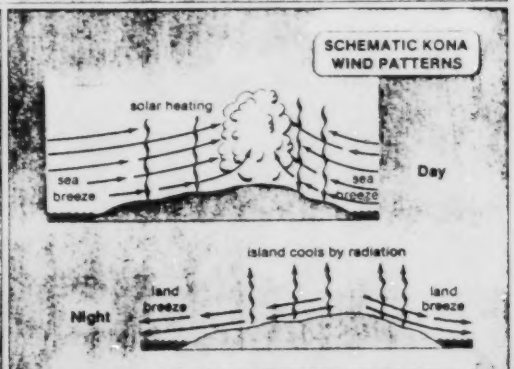
Reproduced with permission of Moanalua Gardens Foundation and authors: Saul Price
Lorin T. Gill



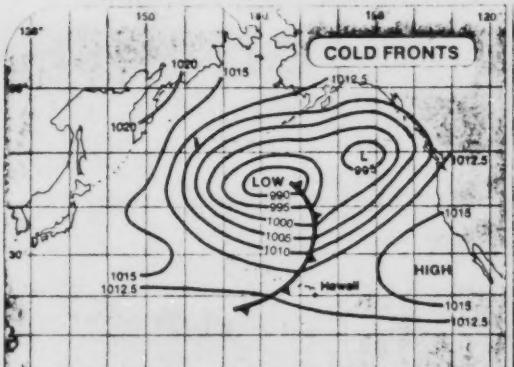

The average location and configuration of the Pacific anticyclone is shown for January and for July, the months in which it attains its greatest and least magnitudes, respectively, and its furthest north and south positions. Air streaming outward in a clockwise direction from the southern portions of this extensive region of high pressure moves across the eastern and central Pacific Ocean as a broad current of northeasterly winds. This is the trade wind, whose persistence reflects that of the Pacific High itself, and which constitutes one of the outstanding features of Hawaii's climate. These winds reaching Hawaii are only moderately warm and humid since their approach lies over the cooler waters to the northeast of the islands. What is regarded as typical Hawaiian weather is that associated with the trade winds: sunny days, breezy and warm, but not sultry, with clouds and showers confined mainly to the mountain areas.



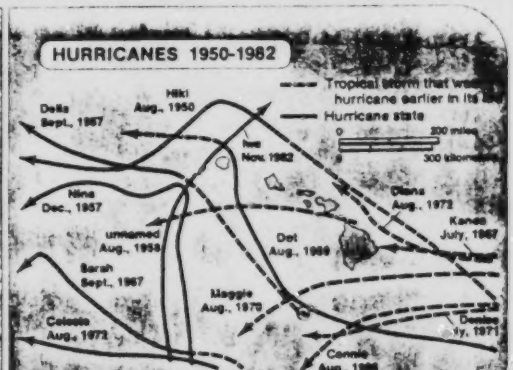

Kona storms are low pressure areas (cyclones) of subtropical origin which usually develop northwest of Hawaii in winter and move slowly eastward, accompanied by southerly winds from whose direction the storm derives its name (*kona* means 'leeward' in Hawaiian) and by the clouds and rain that have made Kona storms synonymous with bad weather in Hawaii. Kona storms vary in number from year to year. Some winters have had none, others five or more.




Kona weather is warm and humid with light, variable winds; it occurs when trade winds or other large-scale weather systems are absent from Hawaii. It is less frequent in summer, but also more sultry then, owing to the higher temperatures. Diurnal heating and cooling of the islands relative to the surrounding ocean generates sea breezes during the day and land breezes at night. Afternoon heating often leads to cloudiness and showers over mountains and interiors.




Between about October and April occasional surges of cold air invade the Hawaiian area from the north. The cold fronts, which mark the leading edges of these cold air masses, are frequently accompanied by widespread cloud, heavy rain, and thunderstorms. Severe fronts may be preceded by strong southwest winds and followed by gusty northerly winds. As many as 20 fronts may reach Kauai in a winter, but only about half progress as far as Hawaii Island.




Hurricanes (called typhoons west of 180°) are uncommon in Hawaii. Hurricane Dot's winds and rain in 1959 caused $6 million damage to property and crops, chiefly on Kauai, and Hurricane Iwa's winds and surf in 1982 caused over $200 million damage, chiefly on Niihau, Kauai, and Oahu. The hurricanes and lesser tropical cyclones that affect Hawaii usually originate off Mexico or Central America, but almost always they dissipate before reaching the islands or pass westward to the south.



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RECOMMENDED FILMS:

From Science in Hawai'i Series (DOE): Videotapes available at ETV office located at Mānoa Elementary School.

"Hawai'i's Climate" Shows how meteorologists forecast our weather; features Saul Price and other scientists.

"Hawai'i's Weather" Gives reasons for Hawai'i's usually fine weather and occasionally bad weather. Shows how to protect ourselves and property in severe weather. Very appealing film featuring Saul Price, elementary students, animation.

From Hawai'i Today and Yesterday Series (DOE): Videotape available at TAC office.

"Climate of the Hawaiian Islands" Featured is Professor Pirie of the UH Department of Geology. Professor Pirie discusses the major wind systems that affect our islands. The videotape was produced in black and white and is in lecture format. However the information is presented simply and concisely.

RECOMMENDED READINGS arranged in sequence from general, comprehensive explanations to certain specialized interests:


Armstrong, R. Warwick, ed. Atlas of Hawai'i. 2nd ed. Honolulu: University of Hawai'i Press, 1983, pp. 59-68. Excellent diagrams of the Pacific Wind Systems on pp. 60-61. Information also found in first edition of Atlas (1973), pp. 53-62.

Blumenstock, David I. and Saul Price. "Climates of the States: Hawai'i". A Natural History of the Hawaiian Islands Selected Readings. Ed. E. Alison Kay. Honolulu: The University Press of Hawai'i, 1972, pp. 155-204.

Carlquist, Sherwin. Hawai'i A Natural History. 2nd ed. Honolulu: Pacific Tropical Botanical Garden, 1980, pp. 63-80.

Price, Saul, Paul T. Matsuo and Karl T.S. Howe, Study Element Report Climatology. Honolulu: Hawai'i Water Resources Regional Study, 1975. Limited distribution of this preliminary report; available at Moanalua Gardens Foundaiton. Mr. Price discusses weather and its effect on the human population. Teachers interested in problems such as drought areas, urban storm flooding areas, and the importance of rainfall to our water supply should read this report, especially pp. 26-120.

Price, Saul. "The Climates of O'ahu". Bulletin of the Pacific Orchid Society of Hawai'i. Vol. 24, no. 4. Honolulu: Pacific Orchid Society of Hawai'i (December, 1966), pp. 9-21. This article is available at Moanalua Gardens Foundation. The author has written several articles on climate in the Hawaiian Islands. "Climates" would be especially useful for teachers who would like to have students measure climatic variations. Mr. Price discusses climatic differences in a garden and explains how the same principles would apply to much larger climatic regions.

Fornander, Abraham. The Fornander Collection of Hawaiian Antiquities and Folklore. Vol. 2. Bishop Museum's Memoir Series, Vol. t. Honolulu: Bishop Museum Press, 1918-1919, pp. 72-77, 78-135. Legend of Pāka'a and Kuapāka'a, gives the names and powers of the winds of several of the islands.

Handy, E.S. Craighill and Elizabeth Green Handy. Native Planters in Old Hawai'i Their Life, Lore, and Environment. Bernice P. Bishop Museum Bulletin 22. Honolulu: Bishop Museum Press, 1972, pp. 330-346. Description of the Makahiki Festival and the rainy season.

Translation for

"Nā Lei O Hawai'i"

1. Beautiful Hawai'i, island of Keawe
   Cherished is the lei lehua and the
   maile of Pana'ewa.

2. Majestic Maui with Haleakalā
   Sacred roselani, the only one for me.

3. Famous Moloka'i with the kukui grove
   of Lanikāula
   And the waterfall of Moa'ula (in Hālawa
   Valley).

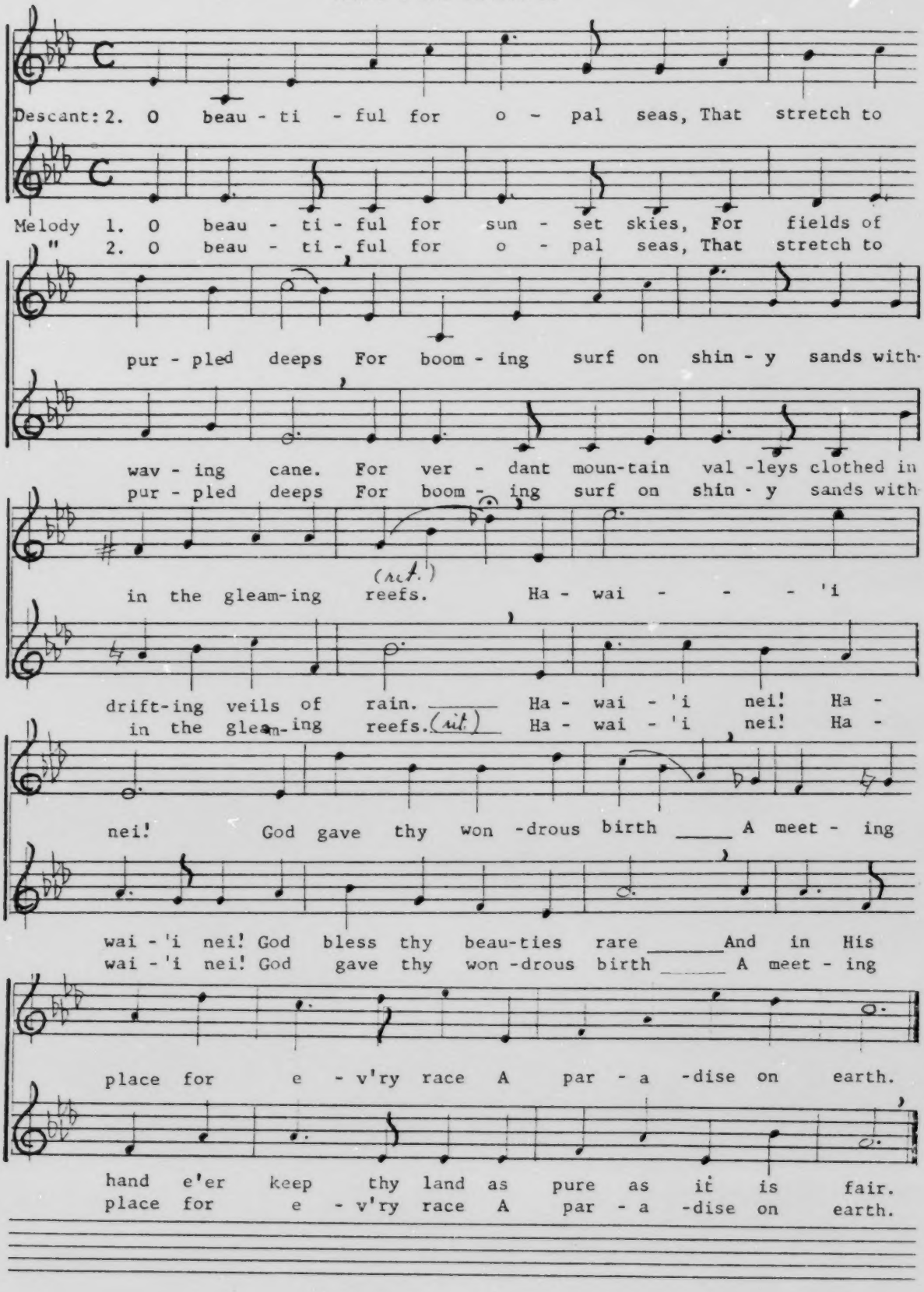
4. O'ahu is bedecked with 'ilima
   Which resembles the yellow feathers of
   the 'ō'ō bird of the mountain.

5. Kauai'i's lei is the mokihana
   Laua'e (Polypodium phymatodes) of
   Makana is my beloved (lei).

6. Ni'ihau, Kaho'olawe, Lāna'i
   Cherished with the pūpū shell, hinahina
   (native heliotrope) and Kauna'oa (Cuscuta
   sandwichiana).

Hawaiian lyrics can be found in King, Charles E. K. King's Book of Hawaiian Melodies, pp. 6-7

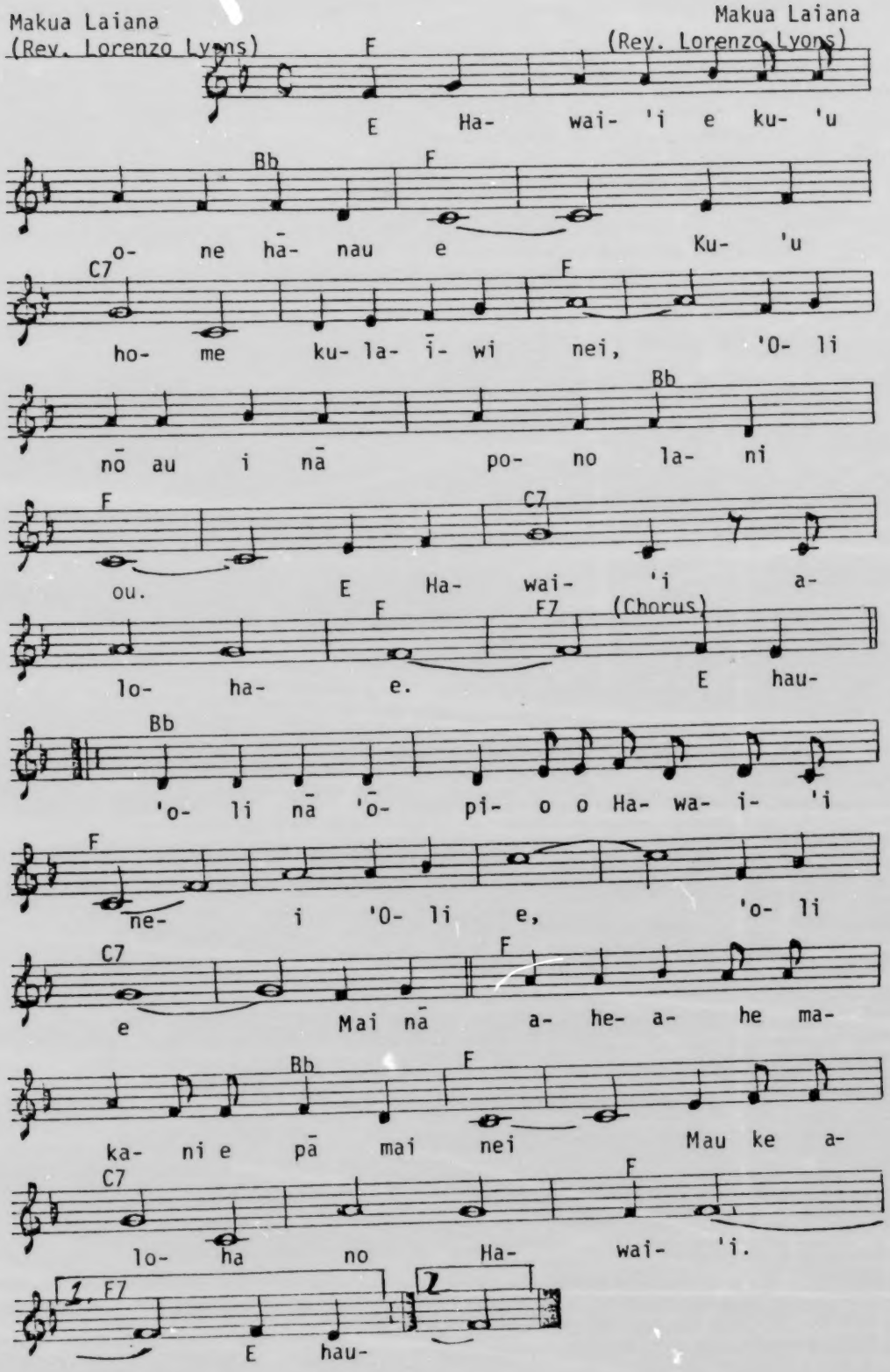
Composer unknown;
Traditionally used in schools

# HAWAI'I THE BEAUTIFUL

Descant: 2. O beau - ti - ful for o - pal seas, That stretch to
Melody 1. O beau - ti - ful for sun - set skies, For fields of
" 2. O beau - ti - ful for o - pal seas, That stretch to
pur - pled deeps For boom - ing surf on shin - y sands with-
wav - ing cane. For ver - dant moun-tain val -leys clothed in
pur - pled deeps For boom - ing surf on shin - y sands with
in the gleam-ing reefs. (rit.) Ha - wai - - - 'i
drift-ing veils of rain. Ha - wai - 'i nei! Ha -
in the gleam-ing reefs. (rit.) Ha - wai - 'i nei! Ha -
nei! God gave thy won -drous birth A meet - ing
wai - 'i nei! God bless thy beau-ties rare And in His
wai - 'i nei! God gave thy won -drous birth A meet - ing
place for e - v'ry race A par - a -dise on earth.
hand e'er keep thy land as pure as it is fair.
place for e - v'ry race A par - a -dise on earth.

See also: Burton, L. and Thomson, W. Music: Comprehensive Musicianship Program, Grade 6, Lesson 49, pp. 167-168 for another version in the Key of G.

# HAWAI'I ALOHA

Makua Laiana
(Rev. Lorenzo Lyons)

Makua Laiana
(Rev. Lorenzo Lyons)

Transcribed by Byron Yasui.

## HAWAI'I ALOHA

```
F                       Bb    F
E Hawai'i e ku'u one hānau e
     C7                 F
Ku'u home kulaīwi nei,
                        Bb   F F7
'Oli nō au i nā pono lani ou.  (or: e)
    C7                  F
E Hawai'i, aloha e.
```

Nā ke Akua e mālama mai iā 'oe

Kou mau kualono aloha nei,

Kou mau kahawai 'ōlinolino mau

Kou mau māla pua nani e.

CHORUS:

```
      Bb                          F
E hau'oli nā 'ōpio o Hawai'i nei
                  C7
'Oli e!  'Oli e!
       F                    Bb     F
Mai nā aheahe makani e pā mai nei
          C7          F
Mau ke aloha, nō Hawai'i.
```

## BELOVED HAWAI'I

O Hawai'i, O sands of my birth

My native home

I rejoice in the blessings of heaven

O Hawai'i, aloha.

God protects you,

Your beloved ridges,

Your ever glistening streams,

Your beautiful flower gardens.

CHORUS:

Happy youth of Hawai'i

Rejoice!  Rejoice!

Gentle breezes blow

Love always for Hawai'i.

tr. Nā Mele O Hawai'i Nei, U of H Press.

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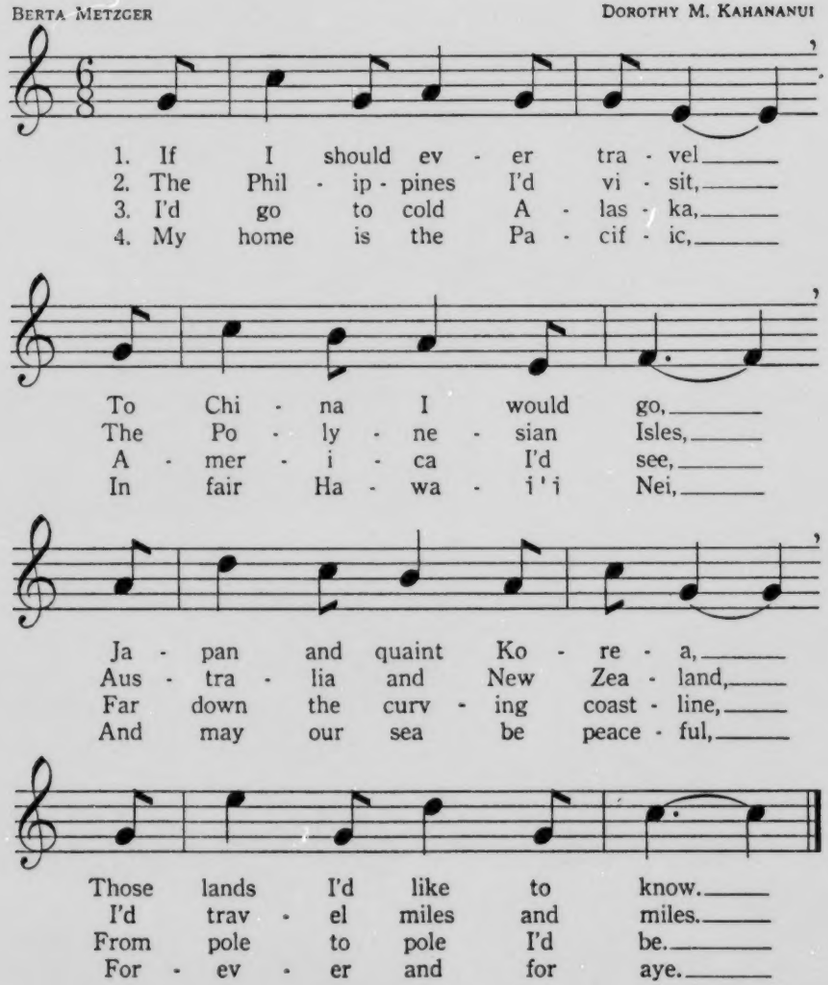
X

# If I Should Ever Travel

Rote Song

BERTA METZGER DOROTHY M. KAHANANUI

1. If I should ev - er tra - vel
2. The Phil - ip - pines I'd vi - sit,
3. I'd go to cold A - las - ka,
4. My home is the Pa - cif - ic,
To Chi - na I would go,
The Po - ly - ne - sian Isles,
A - mer - i - ca I'd see,
In fair Ha - wa - i'i Nei,
Ja - pan and quaint Ko - re - a,
Aus - tra - lia and New Zea - land,
Far down the curv - ing coast - line,
And may our sea be peace - ful,
Those lands I'd like to know.
I'd trav - el miles and miles.
From pole to pole I'd be.
For - ev - er and for aye.

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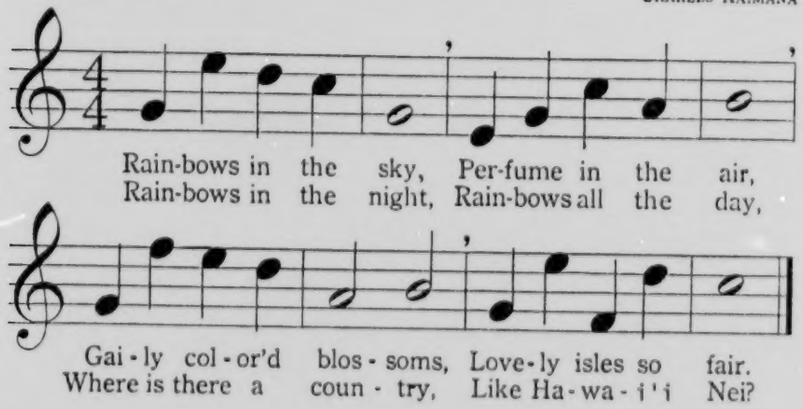
## Hawaii Nei

Rote Song

BERTA METZGER — CHARLES KAIMANA


Rain-bows in the sky, Per-fume in the air,
Rain-bows in the night, Rain-bows all the day,
Gai-ly col-or'd blos-soms, Love-ly isles so fair.
Where is there a coun-try, Like Ha-wa-i'i Nei?

III

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WORKSHEET: "Classifying Nā Mea Kanu (Plants)"

| Nā Mea Kanu that were here (endemic) | Nā Mea Kanu brought by the 1st settlers (Polynesian introduced) | Nā Mea Kanu brought by the foreigners (exotic) |
|---|---|---|
| | | |

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# THE FIRST LIVING ORGANISMS IN HAWAI'I

Due to a wide range of favorable climatic conditions in Hawai'i, many plants and insects arrived and established themselves. They multiplied rapidly because there were few plant and animal enemies. These plants and animals did not come to Hawai'i via land bridges but rather by way of the ocean, wind currents, and birds. Two hundred fifty original species have resulted in thousands of ENDEMIC species known in Hawai'i today.

How did these plants get here? Due to the thousands of miles that exist between Hawai'i and another land mass, some scientists doubt that the seeds were able to travel such long distances. It took millions of years for seed dispersals to take place but from the original 168 species have evolved over 1700 varieties and species of flowering plants in Hawai'i. One means of dispersal was probably by way of air travel. The organisms were probably very miniscule and light like the spores of ferns, mosses, fungi, algae and lichens. Many of Hawai'i's native ferns are endemic, meaning they cannot be found anywhere else.

Dispersal of seeds in the air accounts for 1.4 per cent of the 255 flowering plant immigrants to the islands. Orchid seeds are small enough to be carried by air currents but only three orchids are native to the Hawaiian Islands. Other flowering plants found native to the Hawaiian Islands are the ʻōhiʻa lehua tree, kūpaoa (dubautia) and the pāwale (rumex).

Over 233 species of insects are believed to have been wind-borne. These insects would have had to be small and very light in order to have greater floatability. From these original settlers have evolved over 4.000 species of insects.

Sources: Carlquist, Sherwin. Hawai'i A Natural History.
Feher. Hawai'i: A Pictorial History.



The land birds that have successfully landed in Hawai'i have done so probably because of unusual storms that have carried flocks of birds from other countries passing over the islands and leaving them there to colonize. The water birds that migrated were responsible for some of the plants that arrived. The seeds were imbedded in mud on their feet or other parts of their bodies such as their feathers. It is estimated that 12.8 percent of the Hawaiian flora ancestors arrived by attaching themselves via barbs, hooks, bristles, prongs, stiff hair and to the feathers of birds.

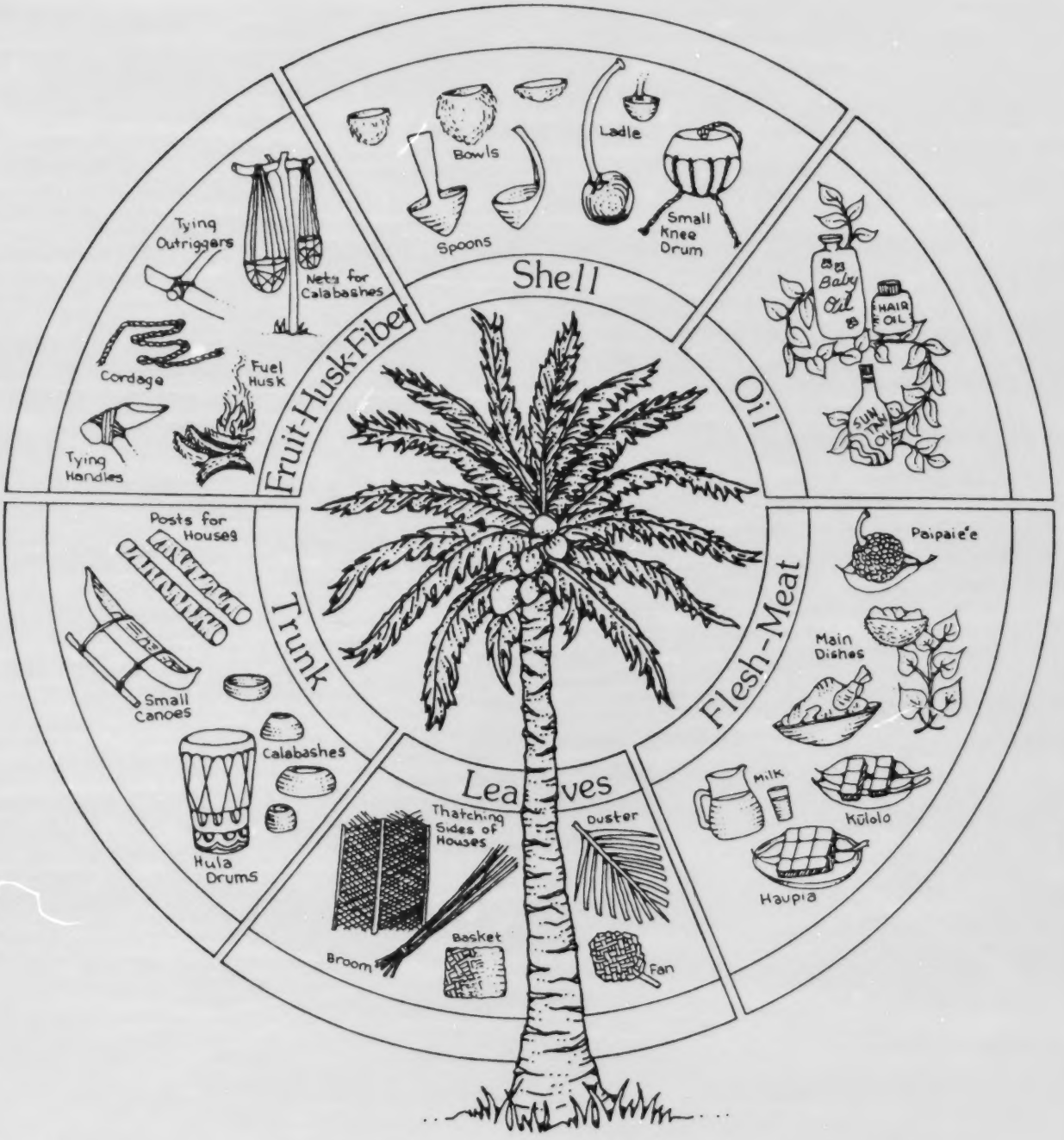
During the prehuman period, most of the flowering plants of Hawai'i arrived via birds that ate seeds, carried them internally and excreted them on arrival. It has been estimated that 39% of the 255 ancestral plants of Hawaii arrived via birds that ate seeds. These seeds remained in the birds' systems until their arrival to Hawai'i. They remained resistant to the birds' digestion system.

Another dispersal method was via flotation in seawater. About 14.3 percent of the original flowering plant immigrants arrived in Hawai'i using this means. Some of these plants are the hala (pandanus), ʻihi (portulaca), pōhuehue (ipomoea), and wili (erythrina).

Plants and animals that arrived in Hawai'i faced a new environment, one that was smaller in size, one that was cut off from others of their species. They arrived in small numbers. The success of survival depended upon how able they were at solving or coping with the environmental problems. They apparently survived well for from the original 255 ancestral plants, we now have several thousand species.

# USES OF THE COCONUT

## Lā'au Niu




Used with permission of Kamehameha Schools, Explorations / Ho'omāka'ika'i, 1981, p. 97.

Grade 3

Unit II

DIVERSE COMMUNITIES IN HAWAI'I

This unit immerses the children in the study of diverse urban and rural communities in Hawai'i. The children identify the factors that influence the start and growth of communities in Hawai'i as well as in other parts of the world. They study the ecosystem, the environmental ethics and economics, and the adaptation of animals and plants to the various environments found in Hawai'i. The unit promotes the study of the Hawai'i environment with the study of environments found elsewhere in the world.

| CONTENT AREAS | EMPHASES |
| --- | --- |
| SOCIAL STUDIES | Studying the diverse urban and rural communities of Hawai'i<br>Understanding how communities develop<br>Identifying factors that influence the start of communities and factors that influence the growth of communities<br>Identifying the different kinds of communities that exist in Hawai'i and in different parts of the world<br><br>Identifying factors that influence the growth of cities, centers of tourism and industries<br>Observing natural features of our islands that facilitated interaction with other countries<br>Comparing Honolulu and cities in our state with those of other states, as well as other countries.<br>Businesses/occupations<br>Goods and services<br>Government<br>Industries<br>Recreation facilities<br>Transportation systems<br>Studying Hawai'i's tourist industry<br><br>Identifying and studying the different types of communities found in Hawai'i today and comparing them with similar communities found in other countries<br>Farming communities<br>Fishing communities<br>Ranching communities |

## LEARNER OBJECTIVES

- Identifies factors in the environment that contribute to the development of communities and cities.
- Is aware that people change their ways of working and living as communities grow.
- Cites examples of environmental problems in the community and the State.
- Practices behavior that illustrates respect for self, fellow schoolmates, teachers and community resource people.
- Develops ways of working together to solve community and school problems.
- Observes changes in Hawai'i as a direct result of the influence of various cultural groups.
- Compares life in Hawai'i's cities and towns today with life in urban areas in other parts of the United States and other countries.
- Recognizes that Hawai'i's natural environment provides opportunities for development and poses limitations on the development of certain aspects of culture.
- Is aware of Hawai'i's largest industry - tourism - and the factors that have led to the development of this successful industry.
- Is aware of Hawai'i's changing land use and its effect on the economy of the islands.
- Understands Hawai'i's changing farming situation and the role truck farming plays in food production.
- Is aware of Hawai'i's fishing communities and understands the importance of this industry to Hawai'i's lifestyle.
- Recognizes ranching as one of Hawai'i's industries and discusses the importance of this industry to the supply of meat for Hawai'i's population.





## APPENDICES

Grade 3 Appendix

Unit II - A Views of Honolulu, pp. 133-135

- B Worksheet: Cities: Similarities and Differences, p. 136
- C Map of an Island, p. 137
- D Visitor Questionnaire, p. 138
- G Plan Sheet: Trip to Hawai'i, p. 141
- I A Farming Community, p. 143
- J Worksheet: Data Gathering, p. 144
- K News articles EDB, pp. 145-148
- L Agricultural Summary: Table 490, p. 149
- M Acreage in Crops: Table 494, pp. 150-153
- N Agricultural Data: Livestock, p. 154
- O Books and Films on Farming Areas, p. 155
- P Some Fishing Areas in the Islands, p. 156
- Q Questions: Fishing, p. 157
- R Fishing (Women's Role), p. 158
- S News article: "Preserving An Era at Waiki'i Ranch", pp. 159-161

| CONTENT AREAS | EMPHASES |
|---|---|
| SCIENCE/ENVIRONMENTAL ED. | Understanding the ecosystem, environmental ethics and economics, population and environmental decisions of a community<br>Building community awareness<br>Laws<br>Land utilization<br>Beautification<br><br>Planning an ideal community<br><br>Studying and experimenting with vegetation from resort and urban areas<br><br>Identifying food plants<br>Distinguishing between fruit and vegetable<br>Planting a school garden of food plants<br>Experimenting with environmental factors and their effect on plant growth<br>Monitoring plant growth and progress<br>Classifying and studying seeds<br><br>Stimulating curiosity about the sea<br>Studying the salinity of ocean water<br>Studying shelled sea animals<br><br>Understanding and building an awareness of animal breeding<br>Pure bred dogs vs. "poi" dogs<br>Cattle breeding in Hawai'i |

## LEARNER OBJECTIVES

- Describes environmental factors that affect the culture of a community.
- Identifies problems in a community and decisions that need to be made to resolve these problems.
- Explains how important to the proper conduct of family and community affairs were the ideas of cooperation, unity, pulling together, and strength in numbers.
- Identifies and describes the major roles and functions of different members of the community in Hawai'i.
- Describes how community members are dependent upon one another in Hawai'i's society.
- Lists some basic examples of how the natural Hawaiian environment provided opportunities for development and areas of limitation on elements of Hawai'i's culture--temperature, abundance of certain plants and animals and lack of others.
- Identifies environmental factors that affect the adaptation of plants to various environments in Hawai'i.
- Identifies varieties of plants grown in Hawai'i and distinguishes fruit from vegetable, edible from poisonous.
- Investigates the composition and contents of the sea.
- Explains the need for and the process of animal breeding.





## APPENDICES

Grade 3 Appendix

Unit II - H Kukui, p. 142

- T Worksheet: Plant Usage, pp. 162-163
- V The Beef Industry in Hawai'i, pp. 168-174

| CONTENT AREAS | EMPHASES |
|---|---|
| LANGUAGE ARTS | Expressing<br>Value judgements about the community, its appearance and general upkeep<br>Creative solutions to problems and creative poems and stories<br><br>Interviewing<br>Community people about land use and maintenance<br>Community kūpuna who lived during an earlier era (oral history)<br><br>Listening to and reading<br>Legends dealing with place names in the community<br>Hawaiian words and phrases<br>Stories about community life in other countries<br><br>Analyzing charts and advertisements<br><br>Writing<br>Letters<br>Creative stories and peoms of origination and experiences in Hawai'i<br>Imaginative accounts of life in Hawai'i at an earlier time in history<br>Descriptive accounts of life in the country<br>News articles dealing with today's problems in agriculture<br>Editorials dealing with today's community problems<br>Headlines for the newspaper<br>Simple Hawaiian sentences and phrases and words<br>Creative tales about "monsters" of Hawaiian waters<br>'Ōlelo no'eau (wise sayings)<br><br>Comparing<br>Activities of children today with those of earlier Hawai'i<br>Food prices across the nation<br>Life in Hawai'i's communities with life in other countries<br><br>Publishing a brochure about Hawai'i<br><br>Researching and reading the newspaper as a source of information on<br>Daily problems and concerns<br>Scientific findings on agricultural practices, medicine, fishing, etc.<br>Weather<br>Global matters<br>Products and services (classified and unclassified ads)<br><br>Memorizing 'ōlelo no'eau (wise sayings) |

## LEARNER OBJECTIVES

- Volunteers to lead or to help in individual or group projects in the family or in the school.
- Expresses the student's feelings about Hawai'i, Hawaiian food, music, dance, and people in English prose or poetry, using Hawaiian words and expressions where appropriate.
- Practices behavior that illustrates respect for self, fellow schoolmates, teachers and community resource people.
- Performs roles in simulation activities illustrating individual rights and responsibilities in a group situation.
- Listens to and accepts opinions of others in group discussions.
- Imitates with correct pronunciation the Hawaiian words, expressions and phrases modeled by the teacher or kupuna.
- Listens to and answers questions orally about a legend or story about Hawai'i told in English but containing Hawaiian expressions and simple phrases appropriate to the child's level of language development in Hawaiian.
- Asks about and identifies objects or people in pictures with simple Hawaiian words or phrases.
- Works with partners or groups on Hawaiian language oriented activities.
- Describes how children in former Hawaiian times may have been alike or different from children in school, at home and in the community today.
- Reads a variety of material dealing with life in Hawai'i today, e.g., newspapers, magazines, brochures, books.
- Studies and analyzes life in Hawai'i's communities today and projects solutions for problems.



## APPENDICES

Grade 3 Appendix

Unit II - E Worksheet: Love a Tree, p. 139

- F Map of the Pacific Basin Countries, p. 140
- U News articles About Parker Ranch, pp. 164-168
- W Tips for Interviewers, p. 175
- X Interview: Steps to Follow, p. 176
- DD Pictures: Farming in Hawai'i, pp. 209-217
- EE News articles: Pesticides and Fertilizers, pp. 218-221

| CONTENT AREAS | EMPHASES |
|---|---|
| MUSIC | Singing mele that describe the many communities throughout Hawai'i<br>"Nā Moku 'Ehā"<br>"Hilo Hanakahi"<br>"Aloha 'Ia Nō 'O Maui"<br>"Maika'i Nō Kaua'i"<br>"Moloka'i Nui A Hina"<br>"'Āina 'O Lāna'i"<br>"Pūpū O Ni'ihau"<br>"Aloha Kaho'olawe"<br><br>Composing songs about Hawai'i's occupations<br><br>Learning songs and dances that have been favorites of the past among malihini (visitors) and kama'āina (residents)<br>Hawai'i - "Little Grass Shack"<br>Maui - "Maui Girl"<br>- "Hasegawa General Store"<br>Kaua'i - "Hele On to Kaua'i"<br>- "Beautiful Kaua'i"<br>O'ahu - "Hawaiian Hospitality"<br>- "On the Beach at Waikiki"<br>Moloka'i - "The Cockeyed Mayor of Kaunakakai"<br>- "E Hīhīwai"<br>General - "Song of Old Hawai'i"<br><br>Enjoying songs about country living<br>"Hele on to Kaua'i" (use of 'ukulele)<br>"Hawaiian Lullaby" (composing new verses based on personal experiences)<br>"Got to Get Away" (composing new verses about country living)<br>"My Hawaiian Country" (key changes - 'ukulele)<br>"Happy Hawaiian Music" (identifying instruments used in the recording)<br><br>Singing and playing songs that describe a composer's love for a special place<br>"Moloka'i Memories"<br>"Across the Sea"<br>"Nā Pana Kaulana O Keaukaha"<br>"Ke One Kaulana O Hawai'i" |

## LEARNER OBJECTIVES

- Sings selected Hawaiian songs introduced by the teacher while playing rhythm instruments in time with the beat.
- Coordinates motions and movements of hands and feet while performing a traditional hula 'auana.
- Illustrates the tonal-rhythmic patterns of Hawaiian songs through singing and performing interpretive dance patterns and body movements.
- Creates motions for songs based on the student's interpretation of the meaning of the lyrics and performs dance creation.
- Expresses feelings for Hawai'i and its people through creative compositions.
- Uses Hawaiian rhythm instruments while singing Hawaiian songs, about Hawaiian islands and places, country living, the kai (ocean) and the plants and animals that live in it and ranch life in Hawai'i.





## APPENDICES

Grade 3 Appendix
Unit II - Y Nā Moku 'Ehā, p. 177

- Z Island Songs, pp. 178-183
- GG 'Ōpae E, p. 223
- HH Got to Get Away, pp. 224-226
- II My Hawaiian Country, pp. 227-228
- JJ Happy Hawaiian Music, pp. 229-231
- KK Moloka'i Memories, p. 232
- LL Place Name Songs, pp. 233
- MM Beautiful Kaua'i, p. 234
- NN Paniolo Country, p. 235

| CONTENT AREAS | EMPHASES |
|---|---|
| MUSIC (CONTINUED) | Enjoying songs about the kai (sea) and the plants and animals that live in it<br>"Ka Uluwehi O Ke Kai"<br>"'Ama'ama"<br>"'Ōpae E"<br>"Nā 'Ai 'Ono"<br><br>Singing and listening to songs about ranch life in Hawai'i<br>"Paniolo Country"<br>"Waiomina" (Wyoming)<br>"Hanohano Nā Cowboy" |
| ART | Using a variety of media to create works of art that express feelings about community living.<br>Drawings using cra-pas, pentels<br>A Futuristic Community<br>An Alternative Community<br>A Ghetto Community<br>Enhancing a Cement City<br>My Favorite Kupuna (grandparent)<br>Creative Cartoons<br>My Moloka'i Memories<br>The New Breed<br>Collage<br>A Community Under the Sea<br>Seed Composition<br>Favorite Country Activity<br>Watercolor painting<br>The Kahakai (seaside)<br>My Hawaiian Country<br>Home on a Ranch<br>Clay<br>My Favorite Farm Animal<br>Movie roll<br>From Production to Consumption<br>A Day on the Farm<br>Posters<br>The Nutri Sandwich |

LEARNER OBJECTIVES

APPENDICES

- Creates pictures and designs that reflect an awareness of the Hawaiian environment.
- Experiments with materials found in Hawai'i's environment and uses them to create works of art that reflect an appreciation of the natural environment.
- Expresses an awareness of and appreciation for the natural environment through a variety of media.
- Expresses feelings and creativity through a variety of media.
- Responds to and experiments with a variety of colors, textures, lines, forms and shapes.
- Uses art tools to develop and refine gross and fine motor skills such as eye-hand coordination.
- Communicates one's thoughts, feelings, ideas through various modes of expression.
- Demonstrates the application of art skills and processes related to various modes of expression.
- Develops sensory responses to a variety of stimuli in the environment through seeing, hearing, touching objects in nature and constructed objects.
- Develops some comprehensive vocabulary through discussing, evaluating, describing, defining and through reinforcing visual and verbal concepts.

| CONTENT AREAS | EMPHASES |
|---|---|
| ART (CONTINUED) | Printing<br>Leaf Designs<br>Fern Prints<br>Gyotaku - Fish Printing<br>Creating booklets<br>Identifying Trees in the Community<br>Creating and designing<br>Advertisements<br>Anuenue (rainbows)<br>Paper sculpture - 3-D Sea Life<br>Limu (seaweed) Pressing |
| HEALTH/FOOD AND NUTRITION | Becoming more aware of the health and nutritional needs within the family unit as well as the community<br>Cultural, social and psychological needs affecting food choices<br>Food choices and attitudes about food<br>Elements of digestion<br>Festive and ethnic foods<br>Field trip to a supermarket<br>Foods from international sources<br>Foods from local sources<br>Foods eaten in early and modern Hawai'i<br>Go foods<br>Grow foods<br>Glow foods<br>Importing and exporting food products<br>Local food plants used as medicine<br>Fun food game<br>Planning nutritious meals with family members<br>Shopping for seasonal foods to cut costs |

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| LEARNER OBJECTIVES | APPENDICES |
| --- | --- |
| • Explores and experiments with a variety of art materials and tools related to the various modes of expression.<br>• Relates concepts of design to natural and constructed objects found in the environmental setting.<br>• Participates in art activities which stimulate use of imaginative thinking and encourage intuitive problem solving.<br>• Helps other classmates on an individual and a group basis to attain some goal. (kōkua, laulima, alu like, lōkahi)<br>• Volunteers to help individuals or groups in school projects.<br>• Gives examples of behavior that illustrate respect for self and others.<br>• Explains the relationship between individual rights and responsibilities in a group situation. (kuleana) | |
| • Detects factors in the local environment of the home, school, community or State which affect health and safety and the selection of food.<br>• Understands that food choices have been influenced by the presence of many cultures existing in Hawai'i.<br>• Is aware that the diet of the early Hawaiians was a nutritious one.<br>• Is aware that food choices are affected by social and psychological needs; shares feelings about why one likes or dislikes certain foods.<br>• Understands the digestive process and how physical and mental well-being affect this important body function.<br>• Is aware of the dependency of Hawai'i on other countries for its supply of some food products.<br>• Understands how food products get from a far-away country across the ocean to Hawai'i. | Grade 3 Appendix<br>Unit II - AA Nutrition Games for Digestion, pp. 184-195<br>- BB Nutritional Value of Hawai'i's Foods, pp. 196-207<br>- CC Basic Foods Worksheet, p. 208<br>- FF Worksheet: "Keeping Healthy in School," p. 222 |

| CONTENT AREAS | EMPHASES |
|---|---|
| HEALTH/FOOD AND NUTRITION (CONTINUED) | Learning more about producing and marketing Hawai'i's important food products<br>Planting<br>Harvesting<br>Processing<br>Packaging<br>Marketing |
| GAMES AND RECREATION | Building an awareness of fun things to do in Hawai'i's ocean and land environments<br>Fun activities at the beach<br>Bombing the Niu (coconut)<br>Burying the Kino (body)<br>Standing-up-to-the Nalu (wave)<br>Waterline Fun<br>Creating games dealing with ranch life<br>Lassoing<br>Corn husking relay<br>Early American western dances<br>Rodeo in Hawai'i |

| LEARNER OBJECTIVES | APPENDICES |
| --- | --- |
| • Understands the Basic 4 food groups and is able to categorize food eaten today as well as that eaten by the Hawaiians many years ago.<br>• Is aware of Hawai'i's home grown products: the niu (coconut), mai'a (banana) kukui (candle nut), macadamia, halakahiki (pineapple), kuawa (guava), etc.<br>• Identifies and is able to name the uses of some of Hawai'i's plant foods.<br>• Is aware of the "marketability" concept.<br>• Understands the nutritional value of food and its importance to building good health.<br>• Selects nutritious foods when preparing menus for self, classmates and/or 'ohana (family). | |
| • Expresses feelings about Hawai'i through creative activities.<br>• Expresses and practices the Hawaiian values of kōkua, laulima, alu like, aloha, and ho'oponopono. | |

## SOCIAL STUDIES

- The following activities allow the children to study the diverse urban and rural communities that make up Hawai'i as a preliminary step in studying how similar communities have developed elsewhere in the world.

A. Understanding how communities develop

1. Have available pictures representing several different kinds of communities throughout Hawai'i.

   E.g., Agricultural
   Dairy
   Fishing
   Resort, etc.

   These pictures are available in:

   Cameron. Above Hawai'i.
   Feher: Hawai'i: A Pictorial History.
   Scott. The Sage of the Sandwich Islands.

2. Write the word "community" on the top of a chart and have the children answer "What is a community?" Write their answers on the chart. (Ans. A place and the people who live there.)

3. Discuss

   a. How do communities begin?

   b. Where do communities begin? Why?

   c. Where is our community located? (Locate it on a wall map of your island.)

   d. What kind of community do we live in? (Answers may vary ... city, suburb, country, fishing, agricultural, etc.)



## SCIENCE/ENVIRONMENTAL EDUCATION

- The children will be involved in a number of activities that will help further their understanding of the ecosystem, population, environmental decisions, environmental ethics and economics of the community in which they live.

A. Community awareness

1. Have the children look at the school grounds as a mini-community.

   a. Have them discuss how the school environment is similar to or different from that of the community.

      E.g.
      Are there rules and regulations in school as there are in the community?
      Who makes the rules?
      How would you go about changing the rules?

   b. Look at how the land is being used. Have the children decide on whether or not the layout of the school is aesthetically attractive or not. Discuss whether it is too crowded with buildings or well balanced with trees and other greenery and flowers or whether some changes need to be made. Have the children discuss whether the buildings have been designed and situated to take advantage of cooling breezes, natural light and other aspects of Hawai'i's climate.



## LANGUAGE ARTS

- The following activities involve the children in reading, writing, speaking and creating. They are meant to motivate the children into learning more about communities here in Hawai'i as well as in other parts of the world.

A. Community value judgments

To enhance a sense of responsibility for caring for the school community, take the children on a brief walking trip with notebooks. Have each student look for things that are beautiful and ugly in the school community. After 15-20 minutes of observation, conduct a retrieval session in class.

1. Compile a master list: one column of beautiful items and one of ugly items. Encourage every student to make contributions. If there are disagreements about some items, place them in a third column and discuss the reasons for the differences.

2. Discuss the relationship between ugly and beautiful. Ask: What can we do to keep beautiful things beautiful? What can we do to change ugly things to beautiful ones?

B. Conducting interviews

Plan some interview questions that can be used when the children interview school personnel about land use and maintenance. Have the children practice interviewing by doing role play. Have them work in mini-'ohana so that every student has a chance to be the interviewer and the interviewee.

## MUSIC

- The following songs and activities will introduce the children to a sampling of mele from a vast collection of songs that describe different communities throughout Hawai'i.

A. Songs about island communities

The children will be studying songs about different places and communities on each island.

Have available a map of the Hawaiian islands and individual maps of each island found in the 17" x 22" collection of charts, Nā Ki'i Ho'onā'auao. (See Appendix Unit I-E, pp. 26-33).

Begin this unit by teaching the children a song that describes all of the islands.

1. Song: "Nā Moku 'Ehā"

Source:
Māhoe. E Hīmeni Hawai'i Kākou, pp. 60-61.
King. King's Book of Hawaiian Melodies, p. 80.
See also Appendix Unit II-Y, p. 177 for newly composed verses for Lāna'i, Moloka'i, Ni'ihau and Kaho'olawe.

Write the words on a wall chart.

a. Island of Hawai'i

1) Introduce the island of Hawai'i by mounting a map of the island on a bulletin board. Point out the lei of the island, lei lehua, and the color of the island as 'ula'ula (red). Try to have available a real lehua for them



## ART

- The following activities involve the children in creative activities that allow them to use their imagination in the creation of works of art.

A. Drawing: A Futuristic Community

Materials needed:

Colored pens or cra-pas
Drawing paper

1. Have the children think about all the films they have seen dealing with futuristic ideas, cities, various kinds of vehicles, etc. Based on what we have here in our island community, motivate them to create a city in an island community years from now.

2. Talk about those things that need to be included so that the city reflects a liveable community. Encourage them to think of means of transportation, architectural designs of buildings, house styles, automobiles, types of materials used in construction, etc.

3. These artistic creations could be used as motivation for some descriptive prose about "Life in the Year 2034."

B. Drawing: An Alternative Community

Materials needed:

Colored pens or cra-pas
Drawing paper



## HEALTH/FOOD AND NUTRITION

- The children will be involved in activities that will help them become more aware of their health and nutritional needs within the family and the community in which they live.

A. Cultural, social and psychological needs influence food choices.

1. Pre-lesson assignment:

Ask the children to look in magazines for colored pictures of their favorite food. If they cannot find a picture, then ask them to draw one.

2. Place these pictures on a bulletin board and talk about the following:

a. Do we all like the same food? Why are there differences in our food choices? (List their answers on a chart.) The reasons they contribute should include:

1) We all come from different cultures.

2) We live in an island community of diversified cultures.

3) We all have different tastes for food.

4) Our parents prepare different kinds of food.

b. Can you tell which foods are Japanese? Chinese? American? Filipino? Hawaiian?

## SOCIAL STUDIES

e. Do you know anyone who lives in another community? What kind of community is it?

1) As the children name the town or city, have them classify them.

E.g.

| Place Name | Type of Community |
|---|---|
| Honolulu | City |
| Kāne'ohe | Suburb |
| Kekaha | Plantation |

2) Encourage them to think in terms of the major activity in each community.

E.g.
Agriculture (pineapple) - Wahiawā, Lāna'i, etc.
sugar - Waipahu, Kōloa, etc.
Diversified agriculture - Kula, Kahuku, etc. (protea, corn)
Fishing - Miloli'i, Kailua-Kona, etc.
Hawaiian agriculture - taro growing - Hanalei, Ke'anae, etc.
Plantation - Waialua, 'Ewa, Honoka'a, etc.
Tourist resort area - Waikīkī, Lahaina, etc.

3) As the children continue this exercise, have them learn these terms by using them in their classifications.

4) Encourage the children to think of places they have visited on their own islands as well as on other islands. Have them recall the kind of town it was and add it to the chart.

## SCIENCE/ENVIRONMENTAL EDUCATION

c. If the children plan to interview some of the people who are in charge, have them plan a layout or a floor plan of what a new school campus should look like.

d. Have the children plan to interview some of the people who are in charge of the school grounds:

custodians
principal
PTA representative

Have them plan the types of questions to ask to solicit some information on how they feel about the school grounds and upkeep. See language arts lesson #B, p. 70.

2. Develop an action plan to improve the school environment. These actions may include:

a. Building clean-up

b. Campus beautification

c. Litter pick-up

3. Develop a one week observation plan whereby the children will keep a list of ways the community and school create pollution in all forms.

E.g.
Litter
Noise
Old, ugly street signs
Smoky buses
Unattractive buildings
Uncovered garbage, etc.

## LANGUAGE ARTS

C. Writing thank you letters

Ask the children to think about all the people who are trying to protect the school and community environment. Make a list of these people and then plan thank you letters to be sent to them. Encourage all the children to become more aware of who these people are. Teach the children correct letter form and correct addressing of envelopes. Use some of the Hawaiian words the children have already learned in the letters that are written. These words include:
aloha - love
alu like - working together
kōkua - help
kuleana - responsibility
mahalo - thank you

D. Loving a tree

To help children become more aware of their observation powers, to teach them to keep accurate records and to motivate them to create stories and poems, have them select one tree on the school grounds as a favorite class tree.

1. Give the tree a Hawaiian "pet" name.

2. Have the children do research and find the scientific name for the tree. Some sources to consult are:

Carlquist. Hawai'i A Natural History.
Clay. Trees of Hawai'i.
Hargreaves. Tropical Trees of Hawai'i.
Lamoureux. Trailside Plants of Hawai'i's National Parks.

## MUSIC

to see and tell them the folk tale about this flower: If you pluck this flower without asking Pele's permission it will rain because it is Pele's flower.

2) Ask the school kupuna to share some legends and kapu about the lehua and about Pele.

3) Go over the words of the first verse. Introduce the new Hawaiian vocabulary to the children:

hanohano - glorious
lei i ka lehua - garlanded with lehua blossoms
kuahiwi nani - beautiful mountain
Mauna Kea - a mountain on Hawai'i

4) Locate Mauna Kea on the map. Have the children share what they know about Mauna Kea. (highest mountain on Hawai'i, snow capped in winter, observatory, etc.) Motivate the children to look for all the information they can find regarding this island.

5) Have the children say the words after you.

6) Have them clap the rhythm as they chant the words. Point out the eighth notes, quarter notes and half notes.

7) Clap the 2/4 beat.



## ART

1. Have available some pictures of an underground community of ants or termites. Encourage the children to share what they have learned about ants and how they live. See National Geographic, Vol. 165:6, June, 1984 for an excellent illustrated article about ant communities.

2. Read excerpts about ant communities and how they work together to feed everyone and help the community survive.

3. After studying the pollution of the earth's atmosphere in science, motivate the children to create a drawing of an alternative community underground. Have them create drawings of apparatuses for supplying the underground community with the basic needs of the people:

E.g.
Air
Clothing
Food
Kinds of shelters
Light
Water

4. Encourage the children to imagine this kind of living and create drawings of means of transportation.

5. Ask the children to think in terms of what they need in their daily lives:



## HEALTH/FOOD AND NUTRITION

1) Ask the children to categorize their favorite foods by cultural groups.

2) Have them suggest other favorite foods in each cultural category.

c. How does a person get to like a certain food?

d. What food in our school lunch program do you enjoy the most? Why?

e. Which food do you like the least? Why?

f. What can you do to learn to like it? (Eat a little of it each time it's served. Lead the discussion to the idea that "attitude" plays an important part in learning to like new things.)

3. Talk about moods of people. Ask the children to list some of the moods they get into. Make a list of these moods and then ask the children to think of foods they like to eat when they are in these different moods.

E.g.., Festive mood: hamburger, French fries, soda, candy, etc.
Depressed: chewing gum, etc.

Ask:

a. Can you eat when you're angry and/or upset?

## SOCIAL STUDIES

5) When a variety of types of communities has been listed, have the children study the list and draw some conclusions about the types of communities that dominate the list. Have them make inferences as to why one type of community appears more often on the list than other types.

E.g., Tourist Resort Area
Inference: Hawai'i is a beautiful scenic state so the four big islands depend upon the tourist industry as one of their major sources of income.

B. Studying urban type communities

1. Have available pictures of Waikīkī and Honolulu as they appear today. These are readily available in pamphlets and brochures in tourist areas such as airports, tour agencies, HVB, hotels, and public tour stations.

Sources needed:

Cameron. Above Hawai'i.
Carter. Sightseeing Historic Honolulu.
Feher. Hawai'i: A Pictorial History.
Morgan. Honolulu Then and Now.
Scott. The Saga of the Sandwich Islands.
Van Dyke. Hawaiian Yesterdays.

2. Pass the pictures to the children and allow them to study and talk about the pictures with each other. Remind them to practice mahalo (respect) for each other's opinions.



## SCIENCE/ENVIRONMENTAL EDUCATION

a. Encourage them to survey their parents, relatives and community people to express their feelings about the appearance of litter and pollution in the community.

b. Ask the children to write a paragraph describing their feelings about pollution in school.

c. Hold a school-wide poster contest as an anti-pollution project. Ask the children to paint some posters announcing the contest. The prize may be a monetary donation from the PTA. The poster should have a theme and should meet some basic criteria. Consult your district art resource teacher for some elements in art that should be a part of the posters. Display the winning posters.

B. Community environmental planning

The children will be involved in planning a community and decision making is a key function of each member of the group.

1. Have the children imagine and sketch a large community on the wall chart or bulletin board.

2. Have them make a list of all the people they want to live in the community, such as:

Babies
Bakers
Business people



## LANGUAGE ARTS

3. Ask the students to find stories, legends, poems and information about the tree. Have them use the card catalog, the librarian's services, their parents, community resources, newspapers, magazines, and as many community kupuna figures as possible who may be able to share some special stories and/or legends.

4. See Appendix Unit II-E, p. 139 for a worksheet to use as the children endeavor to record information about the tree.

5. Create stories and/or poems about the tree.

a. Read some poems about trees that express the poet's love for the tree. A good example of a poem such as this is "Trees" by Joyce Kilmer.

b. Motivate the children to write stories about the tree dealing with origination or how the tree came to Hawai'i.

Ask:

1) How did the tree become a part of Hawai'i?

2) Did the gods create it?

3) Did the seeds float on the ocean?

4) Did the birds bring them?

## MUSIC

8) Divide the class in half and let one side clap the beat while the other side claps the rhythm.

9) Sing the verse for them. Have them sing each line after you.

10) Use an 'ukulele to accompany the song. If ipu are available in your school, have the children beat an u - te, u - te - te beat.

E.g.
Ha-no-ha-no Ha-wai'i lā
u-te u-te-te u-te u-te-te

11) Ask the children: Do you know any songs about communities located on the island of Hawai'i?

a) Name some place names on Hawai'i that do not appear on the map such as:

Miloli'i
Laupāhoehoe
Kona
Kohala, etc.

These may sound familiar to the children and cause them to recall songs they have heard. This is a good lesson for the school kupuna.

b) Introduce some song titles to the children and locate the communities they describe on the map. If your map is laminated, write the names of these communities on your map.



## ART

E.g.
Food supply
Heat to cook food
Sanitation facilities
Schools for education
Transportation
Ways to keep cool or warm

6. Have them create drawings of material necessities for underground living; e.g., central ventilation, communications systems, recreation centers.

7. This art project may work out well as a class project with everyone giving input. Encourage the children to ask their parents to get involved in their creations. This could lead to a school community involvement. Share the final project with the entire school and PTA.

8. Plan a suitable narration for the project. There should be provision for meeting all of the basic needs of people living in the community and communication with the surface of the earth.

C. Drawing: A Ghetto Community

Materials needed:

Drawing paper
Colored pens or cra-pas



## HEALTH/FOOD AND NUTRITION

b. What happens to you when you're angry/upset? (Have the children share physical and emotional symptoms.)

c. Which body parts are involved in the digestion of food? Starting with the mouth, have the children trace the food through the body until it enters the blood stream.

1) Give each child a cookie or cracker to eat and have him/her think about the process, noting what each body part does as the food is chewed and swallowed.

lips - help grasp food
teeth - chew food
tongue - moves food around
jaw - moves the teeth, etc.

2) Have the children think about what's happening in their mouth as they chew. Have them note the "water" that enters the mouth.

Ask:

What is the function of this "water"?
Does it do anything more than moisten the food? (contains enzymes which start digesting)
What is the "water" called? (saliva)

## SOCIAL STUDIES

3. Ask:

   a. What type of community are we looking at? (city)

   b. What is a city? (a large center where many people live and work)

   c. What can we expect to find by going to a city?

   d. What kinds of goods and services are essential for a city to survive?

   e. What do we see in Honolulu, our capital city? (tall buildings, businesses, department stores, condominiums, harbors, buses, cars)

4. Use pp. 10-11 of Above Hawai'i and have the children study the coastline. Have one of the children point out Honolulu Harbor.

   Ask: What is a harbor? (a sheltered place where boats land)

5. Introduce the word awa to them. This is the Hawaiian word for harbor. Share the old name for the Honolulu Harbor area - Kou. This was the name for the harbor and the immediate vicinity until 1800.
6. Ask the children to share personal experiences they have had at a harbor. Some may have gone on the Pearl Harbor tour. If so, have them share what they learned about the harbor, especially its importance during the 1940's.



## SCIENCE/ENVIRONMENTAL EDUCATION

Coaches
Construction workers
Dance teachers
Parents
School children
Storekeepers
Etc.

3. Have the children volunteer to be a member of a mini-'ohana. Have each 'ohana meet to decide on things they feel are important to have in the community.

   E.g.
   School children may want natural streams, playgrounds, animals and stores.

   Have each 'ohana write their suggestions on a chart.

4. Have each group present its list to the total group and additions and deletions can be made so that the most important items are kept.

5. After the children have decided on the items to have in the community, have them now decide on the location for each item. When this location has been accepted, place the item or picture of the item on the bulletin board. Continue working with the children on this community model adding streams, ponds, waterfalls, etc., that the children think of as the project continues.



## LANGUAGE ARTS

   c. Encourage the children to create some illustrations for their poems and stories.

   d. Have the children plan a poem sharing session. They can think in terms of having some accompanying soft music as background to set the mood. The stories may be shared like a radio or TV program including commercials. Ask the children to use their imaginations in the presentations and even make up a new product for their commercials. This product could very well be a by product of the "pet" tree or a product used to care for the tree.

   e. Evaluate the activity. Talk about what the children enjoyed doing the most and why. Then discuss what they want to improve.

E. Reading and listening to legends

There are many legends available that relate interesting values and beliefs of the early Hawaiian people. Locate some of the legends that relate to places within your community especially as they deal with the topics studied in social studies and science.

1. As the children locate significant landmarks in the city, look up the Hawaiian names of the streets and places in Pūkuʻi's Place Names of Hawai'i. Share the information with the children.

   a. Have the school kupuna share stories and legends about significant places in the city, town or rural area.

## MUSIC

c) Gather brochures and pamphlets that describe the different communities. A good source are the tourist publications available in hotels and other tourist locations.

12) Song: "Hilo Hanakahi"

Preparation: Write the words on a chart.

Source:
Elbert & Māhoe. Nā Mele o Hawai'i Nei, p. 50.

Recording:
It's A Small World (Nā Mele o Nā ʻŌpio), LP, Pumehana Records, PS-4902.

a) Introduce the song by sharing the historical data written on p. 50 of the reference listed.

b) On a map of Hawai'i, highlight the districts being described in the song. Share the translation of each verse with the children underlining key words in each verse that describe the location.

c) Play the record for the children; have them listen to the first verse.

d) Say the words in rhythm and have them repeat the lines after you.



## ART

1. Have available for the children a selection of pictures depicting scenes from a ghetto area. Talk about the houses, the people and the way they are clothed, the condition of the buildings and streets, the pollution in the community, the expression on the faces of the people and the mood expressed in the pictures.

2. Have the children transfer their thoughts and feelings on their drawing paper. Motivate them to use color to help express the mood of a ghetto community.

3. When the drawings are completed, motivate the children to write a description of how a community becomes a ghetto and what can be done to improve it.

D. Collage: A Community under the Sea

Materials needed:

Mural size butcher paper
Collage materials - pictures

1. Have the children share movies or educational films they may have seen depicting a city under the sea.

2. Talk about Neptune - god of the sea. Motivate the children to create Neptune's city under the sea. Use the chalkboard to plan this underwater city where people could live free of pollution and extremes in weather.



## HEALTH/FOOD AND NUTRITION

3) Encourage the children to find books about the digestive system and to use the encyclopedia to find information about the function of some of the body parts in the digestion of food.

4) Talk about why people have stomach pain. Is it really pain in the stomach or perhaps some other organ?

5) Encourage the children to share reasons why people have stomach pains. Relate food digestion to one's mental, emotional and physical well-being.

6) Have them draw a diagram of the digestive process, labeling each body part and its function.

7) Involve the children in a creative dramatization of "digestion." Divide the class into mini-ʻohana. Have them create a dramatic presentation of the digestive process using "people" as organs. As each mini-ʻohana presents its dramatization, the audience may indicate the digestive steps taking place. See Appendix Unit II-AA, pp. 184-195 for some games on digestion.

4. Ask the students to name some foods that they have eaten at parties or some other social events such as picnics, school parties or football games.

## SOCIAL STUDIES

7. Hand out copies of Appendix Unit II-A, pp. 133-135. Have the children identify the two pictures and locate them on the map of the islands. Ask:

   a. What type of community do these pictures represent?

   b. How do you suppose such a large community developed in these two areas?

   c. What are some of the natural features of our islands that attract so many visitors to our islands? (beaches, beautiful mountains, green valleys, colorful flowers, waterfalls, rivers and streams, etc.)

   d. If you had a chance to build a hotel and had to find the "ideal spot," what kinds of features would you look for? Record responses on a chart.

      access
      availability of land for the development of recreational facilities
      availability of public transportation, etc.
      availability of water and human resources
      contour of the land, proximity to historical sites.
      scenic beauty
      weather (amount of rain fall, wind), etc.

8. Hand out copies of Appendix Unit II-C, p. 137. Have the children study the map and discuss its contents, especially the legend. Encourage them to find an "ideal spot" on the map and place a symbol



## SCIENCE/ENVIRONMENTAL EDUCATION

6. Discussion/evaluation questions

   a. How did the children alu like (work together)? Did they laulima (cooperate) and kōkua (help) each other? Was there evidence of lōkahi (unity) and 'onipa'a (steadfastness)?

   b. What kinds of similarities are there between their present community and the one they created on the bulletin board?

   c. Were there any conflicts between and within the mini-'ohana? Are these the kind of conflicts city planning boards have?

   d. Did everyone in the groups have an equal voice in making decisions?

   e. Is the new model better planned then the community you live in?

   f. Were the decisions made based on good planning and thinking?

7. Consider the space in the community. Are the buildings close together or is there a great deal of space? Have the children look at the space in the classroom. Have them judge the air, heat, noise and peace within the classroom. Then have them consider the space in the community and in their new community on the bulletin board. Have them make some decisions about the importance of space in a community.



## LANGUAGE ARTS

   b. Ask the children to talk with kūpuna (elders) in the community and have them share information about "how it used to be when I was growing up."

2. Read or tell the legend of the shark god who lived in Pearl Harbor. See Pūku'i, Waters of Kāne, pp. 153-157.

   a. Before reading the story ask the children to listen for the Hawaiian words, beliefs and values.

   b. After the legend is told or read, formulate a retrieval chart for all the Hawaiian words and phrases the children remember hearing, the beliefs and the values the children remember.

   c. Ask the students questions about the story.

      E.g.
      1) Where is Pearl Harbor? Locate it on a map.
      2) Who lived in the harbor?
      3) Of what importance is the shark god?
      4) What is an 'aumakua? (Look it up in the following references by Pūku'i:

         Hawaiian Dictionary.
         Nānā I Ke Kumu, Vol. I.)

      5) Do any of your 'ohana have 'aumākua?

## MUSIC

e) Using an 'ukulele, teach them the verses, pointing to the districts on the map as each new verse is sung.

f) Have the children create hula motions for the verses. Ask the school kupuna to kōkua with this endeavor.

g) Rhythm instruments may be used to accompany the singing such as the ipu or the kāla'au or the 'ili'ili.

b. Island of Maui

1) Locate Maui on the wall map and study the lei and the waiho'olu'u (color) of the island.

2) Have the kupuna share some legends about the island or share some exciting events that took place historically on the island.

3) Introduce the 2nd verse of "Nā Moku 'Ehā".

a) Go over the words, translating the key Hawaiian words:

kilakila - majestic
lei lokelani - rose wreath

b) Locate Haleakalā on the map of Maui and have the children tell some facts about this mountain that they may already know.



## ART

3. Discuss some of the problems involved in living undersea and some of the advantages. Involve the children in an imaginary earthly life under the sea, using the animals of the sea for a variety of functions and uses such as we use the land animals in our communities today.

E.g., we use horses to ride on to do ranching. What can we use under sea to catch fish?

4. Have the children think of the animals that live in the sea and include some of them in the total scenario.

5. Motivate all of the children to contribute to the total mural encouraging them to be creative in the use of collage materials. This is an excellent project for the children to show how much they have learned about:

alu like - working together
laulima - cooperating
kōkua - helping
māhele - sharing
aloha - loving

It is also a good means of motivating the children to become more aware of the kai (sea).

6. As the work progresses, continuous awareness should be made about the total functioning of communities.



## HEALTH/FOOD AND NUTRITION

a. As the foods are named, have the children watch for common choices.

Ask:

1) Do we all choose the same foods to eat at social events?

2) What are some of the factors that influence our choice of food?

b. Divide into mini-'ohana and have each 'ohana plan a social gathering. They need to select the purpose of the gathering, the menu and the kinds of people who will be attending the party. Talk about the importance of an appropriate menu.

c. After each 'ohana has planned its party, suggest that they perhaps prepare one item on their menu that they might use to help make their presentation to the total group more interesting. Encourage the use of foods from different cultural groups.

d. Discuss the impact of the different cultural groups on the life of the people in Hawai'i.

1) Have the children talk about the kinds of eating places available to visitors to Hawai'i as well as kama'āina (local persons).

## SOCIAL STUDIES

there that represents a hotel. Have them add the new symbol to the legend on the map. Have the children share their maps with each other and compare notes. Encourage them to share why they selected their spots.

9. Have the children imagine this ideal spot without any homes and buildings, just the way it might have been when the first humans arrived on the island.

   a. Using pentels and 8½" x 11" drawing paper, have them depict a scene that might have greeted a canoe filled with weary voyagers many centuries ago.

   b. Have them look at the factors and features listed on the charts in activity #7 above and incorporate some of those into their sketches.

   c. When the sketches are completed, have the children share their sketches with each other. Encourage them to share feelings and ideas and reasons why they included certain things in their sketches.

10. Organize the children into mini-'ohana (small groups) to plan a dramatic presentation of the early voyagers arriving on this land area to settle and start a community.

    a. Have them dramatize the decision to land, the selection of a spot to use for shelter and the rationale for these decisions.



## SCIENCE/ENVIRONMENTAL EDUCATION

8. In studying a community, sewage disposal is an important issue. Have the children inquire of their parents and relatives as to where community sewage goes ... septic tanks or public treatment plants?

   a. What are some of the community problems, if any?

   b. Do we have laws concerning sewage disposal?

   c. What kinds of problems do we have with sewage disposal in Hawai'i?

   d. How do rural areas take care of sewage? Does the city area have the same kind of sewage disposal system as the rural areas?

Follow-up: Visit a sewage treatment plant.

C. Vegetation in resort areas

As the children study resort areas on their island, have them also engage in a study of the vegetation of the areas.

1. Plan a walking trip to a resort area. Have available a plastic bag in which sample leaves can be placed. Have the children closely observe the variety of plants that grow along the kahakai (sea shore) and those that grow further inland. Have them note the following features:



## LANGUAGE ARTS

6) What did the people forget to do before building the dock?

7) What do some people do today before building a building or house?

8) What do you see at some building sites that remind you of early Hawai'i and beliefs? (tī leaves tied to posts, etc.) Encourage the children to share some kapu that they recall about their own 'ohana and rituals they go through now that may relate to Hawaiian kapu or other ethnic beliefs.

9) What should you do when you hear people talk about their beliefs? Should you laugh and criticize or should you show respect?

10) What is the Hawaiian word for respect? (mahalo) Introduce the word to them. Ask them if they are familiar with another meaning of this word. (thanks) Tell them that words in other languages frequently have several meanings.

11) Look for 'ōlelo no'eau (wise sayings) that deal with this concept of mahalo (respect). See Puku'i, 'Ōlelo No'eau. Encourage the children to work with a partner and learn one 'ōlelo no'eau well and to share it with members of their 'ohana. Have them write this

## MUSIC

c) Sing the verse; use the ipu for rhythm.

d) Continue with the same kind of activities as listed under "Hawai'i."

4) Song for Maui: "Aloha 'Ia Nō 'o Maui"

Source:
Appendix Unit II-Z, pp. 178-179.

Recording:
Kahaiali'i Maui Style, LP Naupaka Records, NPC-0001, Manu Kahaiali'i.

Rhythm of the Islands, LP, Kaleo-lani Records, Stereo 50002, Karen Keawehawai'i.

a) Write the words and translation on a wall chart. See if the children are able to pick out key words they may have heard before.

b) Locate place names on the wall map.

c) Sing the first verse for the children or play the recording.

d) Go over the words in rhythm and have the children say the lines and then sing them.



## ART

E.g.
Business opportunities
Fresh water
Governance
Law and order
Parks and Recreation
Sanitation facilities
Schools
Transportation

The children will depict these systems that can function in an under-the-sea-community.

E. Watercolor painting: The Kahakai (seashore area).

Materials needed:

Brushes
Can for water
Cardboard or clipboard
Drawing Paper
Water paint tins

1. This activity goes hand in hand with the science lesson on this page. See lesson C, activity 1, p. 80.

2. After studying the coastal plants and talking about the characteristics of the plants and the kahakai environment, have the children choose a site to paint. Encourage them to include as many of the plants as possible but not to forget the other characteristics of the environment.

3. Remind the children about foreground and background relative to size of objects. Point out shadows and sunlight peeking through the leaves.



## HEALTH/FOOD AND NUTRITION

2) Ask the children to note all the different kinds of cultural foods available on the shelves in supermarkets, grocery stores and farmers' markets. Have them write notes on where these products come from by reading the labels or asking the vendor.

3) Retrieval Chart

Set up a chart showing the different ethnic groups represented by the foods on the shelves of our markets and the products available. If there are ethnic groups not represented, find some outlet for the food products.

E.g.
Chinese herbs - sold in special stores in Chinatown and in private homes of Chinese doctors.

e. Plan a field trip to a local supermarket. Ask the children to prepare a list of questions they may have about how food products from other countries get to our local supermarkets.

1) Have the children work in groups. They will select a product from a foreign country and predict the steps involved in transporting the product to Hawai'i. As they discuss this process, they will have many questions. Have them write their questions in their groups on large chart paper.

## SOCIAL STUDIES

b. Dramatic presentation

Allow each mini-'ohana to present its dramatic impression of the first landing. Note the reasons dramatized for the landing at this particular site and the selection of a site for settlement. Have the children name factors in the environment that make it a favorable landing site.

E.g., availability of fresh water close to a food source
a natural harbor
flat land

11. Predicting: Have the children make predictions on how Honolulu developed into a city.

a. Write the predictions on a chart.

b. Read excerpts from Carter's, Historic Honolulu and show them pictures of the historical development of the city. See also Feher's, Hawai'i: A Pictorial History for pictures of Honolulu taken at different periods in the city's history. As the children study the pictures and listen to historical excerpts have them add to or delete items on the prediction chart, if applicable.

12. Study other cities throughout the world by looking at basal social studies texts and other books in the library. Compare Honolulu with other cities:

- airport
- businesses/industries



## SCIENCE/ENVIRONMENTAL EDUCATION

Defense mechanisms
Height of maximum growth
Method of moisture absorption
Root system
Texture of the leaves
Type of seed and possible method of dispersal

a. Discuss the following questions:

1) What are some of the natural hazards to the plants that grow on beach sites? (salt spray, strong ocean breezes, blowing sand, etc.)

2) What are some of the characteristics of the plants that help them survive in this kind of environment?

3) Since the plants grow so close to the ocean, what kind of root system do you think they have?

4) How do these plants get their water? Do they depend on fresh water or are they able to survive on brackish water?

5) How high does most of the coastal vegetation grow? (Have the children estimate the height by standing close to some of the plants.) Why do you suppose these coastal plants are low, shrubby plants? (most of the plants are about three feet tall such as the:



## LANGUAGE ARTS

one 'ōlelo no'eau on a display card to be mounted on a bulletin board. Ask the children to read the bulletin board daily so they can acquaint themselves with more than one 'ōlelo no'eau.

12) Have them write an original 'ōlelo no'eau.

F. Imaginative writing

1. Have the children choose to be one of the plants growing on the beach. (See science lesson on this page.) Ask them to imagine themselves at the time when the huakanu (seed) first arrived in Hawai'i before the presence of humans. They will write a story of their existence in Hawai'i and describe some of the children who arrived over the years. They can also tell about all the holoholona (animals) that came to visit them, the exciting events that took place on the beach or around the area and all the changes that took place until the present; changes in population/ethnic mix; and, geographical features of the land. These writings should be done in the first person (use of I).

2. Have the children think of themselves as a huakanu (seed). They may choose to be a huakanu (seed) that is distributed by: floatation; air currents; or, sticking to things.

a. Encourage them to think about all the places they could visit from their origination point.

## MUSIC

e) Encourage the children to sing it with lots of spirit. This song is a good number to sing with the dancing ipu. It describes the composer's great love for the island:

Maui is indeed beloved
With the bays of Pi'ilani
Decorated with the roses
Sweetly scented.

See Appendix Unit II-Z, pp. 178-179 for the song and a complete translation of the verses.

f) Encourage the children to create hula motions for the verses using their hands only. This song lends itself to a graceful hula noho (sitting hula).

g) Ask the students to think of other beautiful features of Maui and to compose simple verses in English that can be translated to Hawaiian. Use your school kupuna or Hawaiian Studies District Resource Teacher.

c. Continue with the other islands using the similar steps as listed above. Bring in rhythm and hula instruments and encourage the creation of hula motions by the children. Original chants and songs can be composed and sung by the children. Consult with your District Resource Teachers in music and Hawaiian studies. Have the children accompany themselves on the 'ukulele.



## ART

4. Prepare paper frames for the paintings using construction paper when the children return to the classroom. Ask the children to select a complementary color, one that will enhance the looks of the picture.

5. Share these on a school bulletin board.

F. Movie roll: Production to Consumer

Materials needed:

Cra-pas
8½" x 11" drawing paper
Masking tape

This lesson relates to lesson A.4.e. in food and nutrition on page 81.

1. After the children have studied the steps involved in getting a food product from the producer to the consumer, have them divide into mini-'ohana of about 5 people each.

2. Using the retrieval chart prepared in Food and Nutrition, ask the children to plan a movie roll that expresses the steps involved in getting a product from another country like Japan, into this country and on the shelves.

3. Encourage the children to alu like and laulima so that the movie roll can be completed.

4. Ask each mini-'ohana to present its movie roll to the class.



## HEALTH/FOOD AND NUTRITION

2) Have each mini-'ohana share their predictions. Use the questions as a basis for the field trip.

3) Send a copy of the questions to the manager of the supermarket so he/she can be prepared with answers.

4) Talk with the school librarian and have available some reference books for the children to use in a book corner.

5) After the field trip, conduct a retrieval session and have the children plan a movie roll report on how the consumer in a community gets a food product from another country. The project can be done in art class.

6) Share this movie roll presentation with other classes in the school to build more awareness of the food industry in the community.

f. Have the children think about the foods that we eat that come from our local sources such as:

fish - i'a
seaweed - limu
sweet potato - 'uala
banana - mai'a
coconut - niu

## SOCIAL STUDIES

- governance
- harbors
- land
- population
- size
- transportation system
- types of buildings

a. See Appendix Unit II-B, p. 136 for a worksheet to use in retrieving information about different cities throughout the world.

b. Encourage the children to borrow some books about life in other cities that may be available in the school library.

c. Introduce them to the Readers' Guide to Periodical Literature and the variety of encyclopedias in the library. Arrange with the librarian to have a series of lessons on research skills.

d. Have each student select one city to study and write a report using the worksheet mentioned in activity #12a above. Also encourage each student to find pictures to share.

e. Retrieval chart: when the children are done with their reports, have them share their findings and record these on a large scale chart of Appendix Unit II-P, p. 136.

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## SCIENCE/ENVIRONMENTAL EDUCATION

'akoko or euphorbia degeneri
huluhulu or cotton
'iliahi or coastal sandlewood
koko'olau or bidens molokaiensis (beach type)
naupaka or scaevola tacada
wild 'ilima or sida fallax

See Carlquist, Hawai'i A Natural History, pp. 269-274 for pictures of these mea kanu (plants).

b. Have the children look at the huakanu (seeds) of these shrubby mea kanu (plants) and predict how these huakanu (seeds) travel.

1) Did they get to Hawai'i by floating on the ocean?

2) What cha acteristics do they have that may lead you to a conclusion on how the huakanu travel? Do they have sticky features? How then do they travel?

3) Do the huakanu have feathery features? If so, how do they travel?

c. Have the children experiment with some of the huakanu to see if their predictions are correct. Have them categorize the huakanu into the following groups:

1) travel by sea
2) travel by wind currents
3) travel by attaching themselves to birds or humans.

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## LANGUAGE ARTS

b. Display a world map showing the Pacific rim countries and islands. Have them think about and imagine a possible travel route they may take as a huakanu and then commence to describe their travels.

c. The children may write their travels as a daily journal, or they may write it as a descriptive story. Ask them to include descriptions of what they might see in each stopover point.

d. Refer to Appendix Unit II-F, p. 140 for a map of the Pacific Basin countries and islands. Give each student a copy of the map and have them mark the route of their travels by using a colored felt pen.

e. Have the students share their stories and maps.

G. Reading stories about city life in different countries.

Have the children visit the school library to select books dealing with life in cities around the world. Have them look for stories of children who live in these cities. There are a number of activities that can be done with this project.

1. Have the students prepare a book report.

2. Motivate them to look for cultural artifacts dealing with the country in which their city is located.

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## MUSIC

The following songs and their sources can be used for the six islands not yet described.

1) O'ahu

Song: "Aloha O'ahu"
"Beautiful 'Ilima"
Source:
Appendix Unit II-Z, p. 180.

Record:
The Islands - Hawai'i the 50th State, LP, Hula Records, HS-555.

2) Kaua'i

Song: "Maika'i Kaua'i"

Source:
Elbert/Māhoe. Nā Mele O Hawai'i Nei, p. 75. See Appendix Unit II-Z, p. 182.

Recording:
It's A Small World (Nā Mele o Nā 'Ōpio), LP, Pumehana Records PS-4902.

3) Moloka'i

Song: "Moloka'i Nui A Hina"

Source:
Māhoe. E Hīmeni Hawai'i Kākou, pp. 54-55.

Recording:
Use accompanying tapes for the above source. Aloha Moloka'i, LP, Hula Records, HS-529, Moloka'i Trio.



## ART

G. Collage: Seeds in Art (3-D composition)

Materials needed:

A variety of seeds collected in science (field trips)
8½" x 11" tagboard
White glue

1. Ask the children to collect a variety of seeds from their environment. Collect these seeds in plastic containers and label each container with the English or scientific as well as the Hawaiian plant name.

2. Have the children create an original picture using only nā huakanu (seeds). The size of their picture may vary, according to their own choice.

3. These pictures may be sprayed with a preservative spray.

H. Printing: Leaf Prints

Materials needed:

Drawing paper - variety of sizes
Leaves of different sizes and shapes
Paint brushes
Tempera paint

This art activity is an outgrowth of the activities in science.

1. Ask the children to start looking for interestingly shaped leaves as they walk to and from school. Point out the variety of beautiful ferns that grow in shady places.



## HEALTH/FOOD AND NUTRITION

1) Have the children make inferences about the diet of the early Hawaiians based on the kinds of foods that they had available. Talk about how the Hawaiians gathered their food and compare it with today's methods of acquiring food.

2) Bring in a few of the previously mentioned foods and have the children answer the following questions:

Where can we find this food?
Why is this food important to us?
What nutrients are available to us if we eat this food product?

(See Appendix Unit II-BB, pp. 196-207 for some graphs on the nutritional value of the foods listed above. For more information contact the UH Curriculum Research and Development Group, 948-7842.)

Have you seen this food in the supermarket?
How is it packaged? (plastic bags, bottled, loose, etc.)
Does this food need special handling and packaging? Why/why not?

3) Have the children make some generalizations about the food eaten by the early Hawaiians.

## SOCIAL STUDIES

13. Enrichment
Take the children on a field trip to a major "city" on your island so they can see the kinds of businesses, industries, transportation systems, and governmental buildings that are located there. Some of the things to note are:

a. The kinds of goods and/or services available.

b. The various occupations, especially those unique to Hawai'i.

E.g., Hula teachers
Lei makers
Poi producers

c. The municipal buildings.

d. The library, parks and recreation facilities.

e. Main seat of government.

f. Modes of transportation. How people get from one place to another, one city to another and from one island to another.

14. Retrieval
Discuss the field trip with the children when you return to the classroom. On a large chart draw a rough sketch of what the children remember seeing and what they learned. Sketch the stores, buildings, roads, trees, freeways. Motivate them to construct a table model of their "city" or to draw a class mural using a variety of art materials.



## SCIENCE/ENVIRONMENTAL EDUCATION

d. Divide the children into mini-'ohana and have them test their predictions.

E.g.
One mini-'ohana may test all those huakanu that are categorized in #1) above by setting each one in the water. If it floats, the prediction could be correct. Further investigative research in botanical references can confirm or deny the prediction.

e. Encourage the mini-'ohana to keep all the huakanu that belong to their 'ohana in a plastic bag and pass the seeds that don't belong to them to the correct mini-'ohana.

f. Do the same kind of activity with the kumulā'au (trees) that grow in the coastal area. Have them identify the kumulā'au (trees) and then study the huakanu, root system, lau (leaves), etc. Have them make predictions on how the kumulā'au become a part of Hawai'i's environment and then have them test their predictions.

g. When the children return to the classroom, evaluate the experience. Have them contribute to a retrieval chart stating what they have learned. If the children have any questions, write their questions on a chart and plan some activities for finding answers to their questions. Two excellent sources are:



## LANGUAGE ARTS

E.g., Tokyo - the children may bring in a Japanese doll, kimono, koto, samisen, geta, chopsticks, obi, sushi, etc.

3. Ask the students to encourage their parents to share their knowledge about life in another city. They may contribute slides, snapshots, records, etc.

4. Start pen pal letters to another city and share cultural knowledge.

5. Set up a cultural sharing corner called "Life in City Communities."

6. Consult the TAC guide for available video cassettes and filmstrips on life in other cities. Some titles available in video cassettes and filmstrips are:

#1321-1 People's Republic of China (video)
#915 0 Manila, Hong Kong and Singapore (fs)
#301.3 C (fs)
A City is Buildings
A City is People at Leisure
A City is People at Work
A City is Services
A City is Transportation

These titles are available in TAC Materials Holdings List. OIS/DOE, RS79-7647.

H. Planning a brochure

After having studied, in social studies lesson B, the city and other locations on

## MUSIC

See also Appendix Unit II-Z, p. 181.

4) Lāna'i

Song: "'Āina 'o Lāna'i"

Source:
Jacket of Genoa Keawe Hulas of Hawai'i, LP, Genoa Keawe Records.

Recording:
Peter Sings, LP, Genoa Keawe Records, GK-105, Peter Ahia.

5) Ni'ihau

Song: "Pūpū O Ni'ihau"

Source:
Kamehameha Schools, Explorations/ Ho'omāka'ika'i, 1983, p. 41 or see Appendix Unit II-Z, p. 183.

Recording:
"Pupu O Ni'ihau," 45 RPM, 49th State Records, #254, Genoa Keawe.

6) Kaho'olawe

Song: "Aloha Kaho'olawe"

Source:
Right On Kēia, LP, Hula Records, LP, HS-550.

Recording:
Right on Kēia, LP, Hula Records HS-550, Kīhei Brown Trio.



## ART

2. Compile a booklet of leaves. Use scotch tape to completely cover the leaf as you mount it on a page. This retards drying, shriveling, and cracking. Have the children label each page with the English or scientific as well as the Hawaiian name of the plant.

3. Show the children pictures of the vast variety of quilts sewn using Hawaiian leaf prints. See:

   Akana. Hawaiian Quilting: A Fine Art.
   Inns. How to Make Your Hawaiian Quilt.
   Kakalia. Hawaiian Quilting As An Art.
   Jones. Hawaiian Quilts.
   Singletury. Hawaiian Quilting Made Easy.

4. If one is available, show the children a quilt so they can see the work and skill involved in quilting.

5. Encourage the children to select a pattern of their own using leaves. Have them design a quilt pattern of their own.

6. Using the leaves they have chosen, have them use the leaves to produce leaf prints.

   a. The children may decide to do notes, wall hanging, place mats, or stationery.

   b. Have the paper sizes prepared for the children.



## HEALTH/FOOD AND NUTRITION

E.g., They had to eat basically a fresh food diet supplemented with salted and preserved foods. They had no refrigerators so they had to prepare their food fresh daily. They prepared only what they needed daily. They had a diet high in nutritional value.

4) Set up a table display labeled with the following categories:

   Starch/Fruit/Vegetable/Dairy Product/Meat/Beverage/Sweets

   Have the children bring in a food product that was probably eaten in early Hawai'i and place it in the correct category on the table. If the food product is not available, have them bring in a picture or write the name of the product on a card.

5) To help the children become more acquainted with the classification of foods, have them do the worksheet in Appendix Unit II-CC, p. 208.

6) Reclassify the early Hawaiian foods into the three food groups:

   Go (energy foods)
   Glow (protective foods)
   Grow (body building foods)

   Do the same with today's foods.

## SOCIAL STUDIES

15. To increase the children's awareness of Hawai'i's largest industry, tourism, have them engage in some of the following activities:

    a. Plan a trip to a nearby hotel to talk with the public relations officer about some of the following topics:

        1) Jobs performed in a hotel.

        2) Number of tourists who visit the hotel per year.

        3) Number of people who depend on the hotel for an occupation.

        4) Where the people come from.

        5) Why they choose to come to Hawai'i.

    b. Arrange with the PR officer to allow the children to talk with some of the tourists around the swimming pool or lounging in the lobby area so that they might be able to ask them questions. See Appendix Unit II-D, p.138 for a sample sheet of questions.

    c. After returning to the classroom, have the children indicate on a world map the places of origin for many of the tourists to Hawai'i with whom the children spoke. Mark the places with colored adhesive circles.



## SCIENCE/ENVIRONMENTAL EDUCATION

Carlquist. Hawai'i A Natural History.
Neal. In Gardens of Hawai'i.

h. Have the children take some of the meakanu home and plant them in an environment away from the coastal area to see if the plants will survive in an environment other than the coastal area.

i. To do further experiments, plant one huakanu in a pot and water it with fresh water. Plant another huakanu in another pot and water it with water from the ocean. Have the children watch the results and record them on a chart.

j. Take some of the meakanu and have someone who lives in an urban area plant them. Follow up on the results of this experiment and have the children formulate some generalizations.

D. Vegetation in the city

When the children go on the field trip to the city (see social studies activity 13, p. 86), have them note the kinds of meakanu (plants) and kumulā'au (trees) that are available and where they are growing. Encourage the children to note the kinds of compensations people in the city have to make in order to have meakanu growing around the building. (They have to plant them in pots or a variety of planter boxes.)



## LANGUAGE ARTS

their island, have the children plan a brochure that could be used to inform tourists of what to wear, what to buy, where to shop, and what to see and do in Hawai'i. They may want to look at some sample brochures before planning their own brochure. These are available in hotels and resort locations. Have them plan a brochure for their own island.

1. Discuss some of the items that should be included in the brochure. For example:

    a. Hawaiian words such as:

        Aloha kakahiaka - good morning
        Aloha awakea - good day
        Aloha 'auinalā - good afternoon
        Aloha ahiahi - good evening
        Mahalo - thank you
        E 'olu'olu 'oe - please

    b. Brief history of the island.

    c. The island's English nickname.

    d. Historical sites.

2. Provide several resources for them to use:

    Cameron. Above Hawai'i.
    Feher. Hawai'i: A Pictorial History.
    Pūku'i. Place Names of Hawai'i.
    Sterling. Sites of O'ahu.
    Van Dyke. Hawai'i's Yesterdays.

3. These brochures may be individual or the combined efforts of several children working as an 'ohana.

## MUSIC

2. If there are other songs of your island that you are familiar with, do introduce them to the children to increase their knowledge of their island. Good sources of more songs are:

   parents (mākua)
   kūpuna
   musicians
   hula teachers
   resource teachers

B. Songs that describe occupations of people:

1. Ask the children to think about an occupation that they are especially interested in. Have them write four to eight lines describing the occupation.

   E.g.
   I gather flowers at the break of day
   To string a lei for you
   It makes me feel so happy and gay
   To see you happy too

2. After their lines are written, encourage them to make up a tune for the composition using their parents, grandparents or music resource teacher in your district.

3. Help them write the musical notes.

4. Have them share their compositions by playing them on the bells, piano, 'ukulele or by singing them.

5. Plan a musical presentation with the children using their compositions to tell a story about the workers they observe in their communities.



## ART

c. Give the children some practice paper before they do their final printing. Have them experiment with the amount of paint to apply to the leaves in order to get the best print.

7. If the interest is high, do some silk screening on tee shirts using these leaf prints.

I. Drawing: Enhancing a Cement Environment

Materials needed:

Cra-pas
Drawing paper

1. Have the children select a building in the neighborhood, community or nearby city that they feel needs to be enhanced by plants because it it too stark or naked. They may even choose to select a shopping center or someone's home.

2. Have them create a drawing of their selected site, adding flora (and fauna if appropriate) to enhance the aesthetic appeal of the building(s) or shopping center.

3. Invite a speaker to talk to the children about how to improve the appearance of public places, including public parks and recreation centers. Send the children's drawings to the city council, appropriately labeled and accompanied by a letter of introduction.



## HEALTH/FOOD AND NUTRITION

7) Demonstrate how to open a niu (coconut) like the Hawaiians did. (Ask the kupuna, school custodian or a community person to help you get a resource person to do this. If there are Samoan or Tongan children in the class perhaps one of the famiiy members could be invited.)

   Talk about the uses of the coconut flesh or meat. Have the children name some foods made from the inside of a coconut by Hawaiians and other cultural groups.

   E.g.
   haupia - coconut pudding w/arrow root
   kūlolo - coconut pudding w/kalo
   lū'au he'e - squid lū'au
   lū'au moa - chicken lū'au
   coconut candy
   palusami - Samoan lū'au dish
   Etc.

   Give the children an opportunity to help open a niu (coconut) so they can appreciate the amount of work involved in food preparation many years ago in Hawai'i and still going on in many parts of Polynesia.

8) Discuss the ease of preparing meals today.

## SOCIAL STUDIES

1) Ask the students to work in mini-'ohana and plan a trip to Hawai'i from one of the places marked on the map.

2) Each mini-'ohana will plan the mode of transportation, people involved in providing services and the sights to see. They will brainstorm in their 'ohana and then write their decisions on a chart similar to the one in Appendix Unit II-G, p. 141.

3) Have each 'ohana share their work with others in the classroom.

4) Have the children list the industries in a city that provide jobs for people who work with tourists.

   E.g., Automobile rentals
   Garment factories
   Gift shops
   Restaurants
   Taxis and tour buses

5) Have the children contribute to a chart containing information on:

   a) Reasons for coming to Hawai'i

   b) What people enjoy most in Hawai'i.

   c) What they enjoy least.

   d) Why people keep coming back to Hawai'i.



## SCIENCE/ENVIRONMENTAL EDUCATION

Activities

1. There are many tall buildings in the city. Have the children talk about how these buildings affect the growth of meakanu. (Shade, wind breaks or wind funnels, rain blocks, etc.)

2. Ask the children:

   a. What do meakanu need to grow? (Children should remember the answers from Unit I science lessons.)

      enough lā (sun)
      enough wai (water)
      right lepo (soil)
      manua (fertilizer)

   b. What will happen to a meakanu if it is in the shadow of a building all day?

   c. Can some meakanu grow well without direct sunlight?

3. Have the children look for some of the meakanu that survive well without direct sun. Have them perform some experiments with potted plants to see if plants are capable of adapting to changed environments.

4. Have the children write the names of the meakanu they saw in their city visit on a chart and compare the list with the coastal plants. Discuss the differences and/or similarities in the plants found in the two environments.



## LANGUAGE ARTS

I. Writing a job description

1. After naming the industries involved in working with tourists [see social studies lesson #4) on this page], have the children think about the different kinds of jobs available in each industry.

   E.g., the restaurant industry would have:

   An accountant
   Buspersons
   Cashier(s)
   Cooks
   Dishwashers
   Host or hostess
   Manager(s)
   Waiters/waitresses
   A bartender/bartendress & musicians (maybe)

2. Have the children select a job that they may someday be interested in. Have them find out as much as they can about the job and then write a description of how their jobs provide service. Encourage them to illustrate their description or cut out pictures that show what the job entails.

3. Share these descriptions and mount them on a bulletin board.

4. Have the children generalize why the tourist industry is important in Hawai'i.

J. Life in the country

1. Writing experiences

   a. Ask the children to recall some of the most exciting experiences they have had "in the country." (ma kai to ma uka)

## MUSIC

6. Compile the compositions into a booklet.

C. Songs of the islands that have been favorites of visitors to the islands and residents.

The following songs have been long time favorites of malihini (tourists or newcomers) as well as kama'āina (island folks). They were composed as early as the 1930's and as late as the 1970's. Many community persons, parents and music resource persons have access to the words and know the melodies so they would be excellent artists to call in to teach the children. The following hapa haole songs lend themselves to hula so motivate the children to create hula motions and foot work for the songs.

1. Hawai'i

   Song: "Little Grass Shack"

   Source:
   United Artists Music, Songs of Hawai'i, pp. 8-11.

   Recording:
   Easy Hulas, LP, Mahalo Records, MS-4001, Charles Kaipo.

2. Maui

   a. Song: "Maui Girl"

      Source:
      Criterion Music Corp., Authentic Songs of Polynesia from Hawai'i, Tahiti and Maori, Bk. 2, p. 62.

      Recording:
      Hawai'i A Musical Portrait, Vol. 2, LP, Music of Polynesia Records, MOP-4600, Jack DeMello and Nina.



## ART

4. Take the children on a field trip to the Mayor's office. Arrange to have someone from the county or city department of planning and development talk to the children about how decisions are made for new developments.

J. Creating Booklets: Identifying Trees

1. As the children study the variety of trees in the environment, collect pictures (photos or drawings) of the trees and set up a booklet.

2. Have the children distinguish between those that are indigenous and those that are introduced. Use community persons to help identify the trees that abound in the childrens' immediate environment.

3. Plan with the children a format for labeling each tree in the booklet. Use the Hawaiian dictionary and other resources to locate the Hawaiian, English and Latin (scientific) names. The label could contain the following:

   Name of tree: Hawaiian -
   English -
   Scientific -

   Where found:

   Note: Not all trees in Hawai'i have Hawaiian names.

   Resources:
   Hargreaves, Dorothy and Bob.
   Hawaiian Blossoms
   Tropical Trees of Hawai'i
   Tropical Trees of the Pacific



## HEALTH/FOOD AND NUTRITION

Ask:

If you were a cook and wanted to make haupia, where would you get the coconut milk? (frozen can of coconut milk in the supermarket, ground coconut packaged and available in the store, etc.)

9) With the tourist industry being the largest industry today, many food products need to be available for tourists. Ask the children to name some of Hawai'i's products that are favorite "take home" foods for tourists.

   E.g.
   fresh pineapple
   macadamia nuts
   coconut candy
   Hawaiian jellies
   teriyaki mix
   haupia mix
   sweet-sour mix
   kim chee mix

10) Discuss the shipment of fruits from Hawai'i to the mainland and from the mainland to Hawai'i.

- Can a person take fresh fruits and vegetables to and from the mainland?
- What are some of the state laws regarding the shipment or transportating of plants?
- Why are these state laws important?

## SOCIAL STUDIES

Culmination:

Have the children generalize on what they can do to help Hawai'i continue to be an attraction to tourists. Write these on a chart and post it on a school wide bulletin board.

C. Studying rural type communities

Bulletin board display

Locate some pictures showing rural lifestyles E.g., pictures showing people farming, fishing or taking care of dairy animals or farm animals. See Appendix Unit II-I, p. 143.

1. Have the children study the pictures on the bulletin board and discuss the following:

   a. What kind of community do the pictures represent? (farming, fishing, dairy, ranching, etc.) The answers may vary and be very specific but the discussion should lead to the concept of "rurality" - characteristic of the country. Introduce the term rural and give them the Hawaiian translation, kua'āina. Place both of these words on the bulletin board as a title for the display.

   b. What kinds of jobs do you see being done by the people in the pictures?

   c. Name some communities on our island that are "rural" communities. Tell why you think they are rural.



## SCIENCE/ENVIRONMENTAL EDUCATION

Compare the lau (leaves), the huakanu (seeds), the root systems, the height. Formulate some generalizations.

5. Invite someone from the county planning office who is in charge of the community's kumulā'au (trees) to visit your class. Have the children prepare a list of questions to ask him/her so that they can learn some criteria for selecting and maintaining kumulā'au suitable for the urban environmental conditions. Some sample questions may be:

   a. Where did you get the trees?

   b. Who decides which trees will survive best in the city?

   c. What criteria do you use when selecting trees?
   E.g., resistant to pollution.

   d. Who determines where and when the trees will be planted?

   e. Who is responsible for maintaining the trees - watering, pruning, doctoring, etc.?

   f. If a group of school children wanted to plant a tree in the city, how would they go about doing this?

6. The state tree is the kukui tree (candle nut). The children should learn as much as they can about the significance of this tree.



## LANGUAGE ARTS

   b. Using a chart, record some descriptive words they use to describe their experiences:

   E.g.
   Exciting
   Fantastic
   Funny
   Great
   Good fun, etc.

   c. Have the children share some other words that express the same feelings as those listed on the chart by using the Roget's Thesaurus or the dictionary.

   d. Expand the list even more by asking the school kupuna to share the Hawaiian equivalent to some of the words. Also, have the children use Pūku'i-Elbert, Hawaiian Dictionary.

   e. After introducing the Hawaiian words for the feelings expressed on the chart, motivate the children to write a descriptive account of one of their experiences in the country. They should use as many of the words on the chart as possible.

   f. Have them share their descriptions with each other. Motivate them to think of an illustration of their favorite activity in the country and to sketch it in preparation for art activity #L, p. 93.

2. Talk about children today and their activities and how they may be similar to or different from those of an earlier Hawai'i.

## MUSIC

b. Song: "Hasegawa General Store"

Recording:
George Paoa Live At the Maui Hilton, LP, Hula Records, HS-539.

3. Kaua'i

Song: "Hele on To Kaua'i"

Recording:
Melveen Leed's Grand 'Ole Hawaiian Music Nashville Style, LP, Lehua Records, SL-7053.

Song: "Beautiful Kaua'i"
Source: See Appendix Unit II-MM, p. 234
Recording:
Beautiful Kaua'i, LP, Hula Records, HS-541, Kawai Cockett and the Lei Kukui Serenaders.

4. O'ahu

a. Song: "Hawaiian Hospitality"

Recording:
Easy Hulas, LP, Mahalo Records, MS-400, Charles Kaipo.

b. Song: "On the Beach at Waikīkī"

Source:
United Artists, Songs of Hawai'i, pp. 44-45.

Recording:
Hawai'i's Sunset Melodies, LP, Waikīkī Records, ST-332, Various Artists.



## ART

Rock. The Indigenous Trees of the Hawaiian Islands.

K. Creating and Designing: Commercial Advertisements

1. Have the children imagine themselves as owners of some commercial food product. Based on what they have learned in Food and Nutrition activities, p. 93 #A.4.f.11) and 12), encourage them to use the beauty of Hawai'i to attract people to read about the product they are selling.

2. Encourage them to select a variety of styles in creating their brochures. E.g., cross-over, tri-fold, bi-fold.

3. Display all of the brochures and have each of the children select one brochure that they especially like and write why they like it.

L. Mural (collage): Favorite Country Activity

Materials:

Brushes
Glue
Pentels
Sand, shells, earth, and a variety of other materials for collage
Scissors
Tempera paint
3' x 8' butcher paper

Procedure:



## HEALTH/FOOD AND NUTRITION

. Have you read or heard about other states limiting interstate transport of fruits? (California and Florida are especially concerned about fruit flies and citrus cancre.)

11) Plan a field trip to a macadamia nut or candy factory. Have the children observe the process involved in the production of canned nuts or of candy.

12) Have available some advertisements from magazines and newspapers about some Hawaiian food product such as macadamia nuts, guava, pineapple, Kona coffee, etc.

. Encourage the children to select one Hawaiian food food product and plan an advertisement or commercial that can be used to "sell" the product to visitors. Have them complete these brochures in art class and share them with other classes in school.

g. Ask the children to name a Hawaiian food product that was used as food as well as a medication. Some of them may be able to name some of the following:

1) Niu - eaten as food and the milk was squeezed and used in haupia. Coconut water was drunk to flush a person's kidneys.

## SOCIAL STUDIES

E.g.
Waialua: much of the land is planted in sugar cane and the people work for the plantation.

Hanalei, Kaua'i: much of the land is planted in kalo, etc.

2. Have the children name the food products that are raised in Hawai'i today by big or small farms.

Sample list:

| | |
|---|---|
| corn | macadamia |
| banana | onion |
| papaya | sugar |
| orange | pineapple |
| guava | watercress |
| coffee | cabbage (Chinese) |
| tomato | taro |
| lettuce | cabbage (head) |
| ginger | |

a. Do Hawai'i's farmers raise enough food to support everyone who lives in Hawai'i? (no) How do we know this? (We still ship in our food.)

b. Do we farm as much land as we did many years ago? (no) How can we tell? (pictures, books, what people tell us)

c. What are some of the changes in land use that have taken place in Hawai'i?

1) Landowners have sold land to developers who have built hotels, subdivisions, shopping centers, etc. This reflects a change from agricultural to urban use.

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## SCIENCE/ENVIRONMENTAL EDUCATION

a. Read a legend to the children that tells about the significance of the silvery leaves of the tree. See Pūku'i, Tales of the Menehune, p. 68.

b. Ask the children to share what they know about the tree, especially why the tree was probably selected to be the state tree.

c. Have them bring different parts of the kukui tree.
E.g., nuts, bark, flowers, leaves, green fruit,
Using Appendix Unit II-H, p. 142 prepare some of the items shown there.

d. Conduct some nature study activities with the children to create a greater interest in the environment and in learning through discovery.

E. Identifying food plants

1. Take the children on a walk on the school grounds and have them identify plants that can be used for food. As they name them, write the names on 5" x 7" cards. (E.g.: banana, guava, sugar cane, ti, etc.)

a. In the classroom have the children share what they know about the food plants they found on the school ground.

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## LANGUAGE ARTS

a. Compose a chart showing two columns:

| Activities | |
|---|---|
| Early Hawai'i | Hawai'i today |
| body surfing | boogie board surfing |
| playing kimo | playing jacks |

b. Ask the children to make contributions to the chart. They will see that the activities are similar with only slight differences.

3. Oral Histories

Introduce a mini-unit on oral histories. The community kūpuna (grandparents) have a wealth of information on a life-style that was of an earlier era.

a. Ask the children to identify kūpuna in the community who are familiar with the lifestyle in the community at the time they were growing up as children. Compile a list of these names and their phone numbers.

b. Have the children identify the kinds of questions they need to ask in order to record descriptions of the community as it existed many years ago. See Appendix Unit II-W, p. 175 for a sample questionnaire and biographical data sheet.

c. Discuss the uniqueness of individuals in different cultural groups. Talk about the respect and courtesies that elders of the community deserve.

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## Music

5. Moloka'i

   a. Song: "The Cockeyed Mayor of Kaunakakai"

      Source:
      R. Alex Anderson's Famous Songs of Hawai'i, p. 12.

      Recording:
      Hilo Hattie At the Hawaiian Village Hotel, LP, Paradise Records, HH-100.

   b. Song: "E Hīhīwai"

      Source:
      Sheet Music available at music stores.

      Recording:
      Melveen Leed's Grand Ole Hawaiian Music Nashville Style, LP, Lehua, SL-7053.

6. General song about Hawai'i

   Song: "Song of Old Hawai'i"

   Source:
   United Artists Music, Songs of Hawai'i, pp. 5-7.

   Recording:
   Easy Hulas, LP, Mahalo Records, Charles Kapio.

D. Songs about country living

1. "Hele on to Kaua'i"

   Recording:
   Melveen Leed's Grand Ole Hawaiian Music Nashville Style, Lehua Records, SL-7053.
   This country style album has songs that describe country type places in Hawai'i.



## Art

1. Have the children prepare sketches of their favorite country activity. (See language arts activity J.1.f., p. 92.)

2. Mount the 3' x 8' chart on the bulletin board and have the children plan a picture that will illustrate activities from the kai (sea) to the uka (upland) areas.

3. Have the children decide where their activity belongs in the picture; talk about having the entire picture be a bird's eye view of an ahupua'a (land division) with no sky ... just land.

4. After they have determined the perfect spot for their drawing, have them sketch their activity. Ask them to use a variety of collage materials. Encourage them to alu like (work together) so that the mural represents a coordinated picture.

5. Evaluate the project:

   a) use of materials
   b) coordination of colors
   c) placement of activities
   d) overall effect of the mural
   e) the working climate;
      E.g.
      alu like - working together
      laulima - cooperation
      kōkua - helping

6. Share the mural with others in the school. (Cafeteria bulletin board or the library.)



## Health/Food and Nutrition

   2) Kukui nut - eaten as a relish called 'inamona. Taken medicinally as a laxative.

h. Engage the children in some fun food games to help them become more acquainted with the food plants of Hawai'i. Using the classification worksheet mentioned in activity A.4.f.5. on p. 87, have the children select a plant or animal food that was eaten in early Hawai'i. Have them write a description of the food product without revealing what it is.

   E.g.
   I am important at a Hawaiian feast.
   Without me, Hawaiian food would not be at its best.
   I am made from an underground stem.

   1) Encourage the children to give only enough information, not too much.

   2) Divide the class into two teams and have each of the children present his/her description.

   3) The correct name must be given in Hawaiian as well as in English. For each correct answer, a team scores 1 point.

## SOCIAL STUDIES

2) There has been an increase in production per acre so the amount of acreage in cultivation has decreased. Also some major plantations have closed down.

d. Encourage the children to look at pictures to find other kinds of changes in land use. Some excellent sources are:

Cameron. Above Hawai'i.
Morgan. Honolulu Then and Now.
Van Dyke. Hawaiian Yesterdays.

1) Ask the children to talk to their parents about the past and the things they recall about land usage. Have them look through family photo albums for snapshots of landscapes.

2) Check the TAC Guidelines and Video Holdings List (State Guide) for video programs dealing with land use. Two suggested titles are:

0179-2 Agriculture and Manufacturing in Hawai'i
R069-1 Land Use and Population

3) Compose a chart that reflects the results of all these activities. The children should be able to list several reasons why farming has changed from one or two crop farming to diversified farming.

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## SCIENCE/ENVIRONMENTAL EDUCATION

E.g.
Banana: the fruit is eaten when ripe. It is used in cooking like banana pies and cakes. Filipinos and Samoans (as well as other ethnic groups) like to cook the green bananas.

b. List the food plants named by the children in one column on a wall chart. Ask the children to share other names for the food plant such as:

| Hawaiian | Ilokano | Samoan |
|---|---|---|
| mai'a | sabá | fa'i |

c. Encourage the children to think about the plants they have at home or in their neighborhood that are food plants. Continue the list and have the children bring in samples of these food plants especially those that are not so familiar to other children such as the:
bitter melon
pomelo
sour sop

1) Have the children set up an interesting corner to exhibit all of these food plants.

2) Attach lengths of yarn to each item on the food chart and have the children attach the other end to the correct food plant on the display table.

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## LANGUAGE ARTS

d. Write a class list of do's when relating with a kupuna.

E.g.
Do listen carefully without interrupting.
Do show that you're interested in what your interviewee is saying.

See Appendix Unit II-W, p. 175.

e. Allow the children to practice interviewing each other.

1) Have them practice the necessary 'ohana concepts as explained in the General Appendices section of this guide, pp. 247-264.

2) Have them use a tape recorder in these sessions so they can master the buttons and the volume control of the machine.

3) Ask the children to listen to their practice recordings and evaluate their voice quality, their clarity of questions and the overall effect of the interview.

f. When they all feel comfortable and ready, have them follow the steps listed in Appendix Unit II-X, p. 176.

g. Plan a sharing schedule. Have the children select a portion of the taped interview that they would like to share with the entire class. Have them prepare an introduction and a conclusion for the sharing.

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## MUSIC

Use the album as a listening source of songs as well as a resource for teaching songs of Hawai'i.

a. Have available the map of Kaua'i. (See Nā Ki'i Ho'ona'auao charts.) Have the children locate the different places named in the song:

E.g.
Hanalei
Waialua
Waimea Canyon

b. Have available also some pictures of Kaua'i showing some of the scenic spots of the "Garden Isle." See tourist brochures or books.

E.g.
Cameron. Above Hawai'i.
Van Dyke. Hawai'i's Yesterday's.
Wenkam. Hawai'i's Garden Island: Kaua'i.

c. Play the record for the children and have them listen as they follow the words on the song chart.

d. Ask them to say the words in rhythm as the record plays once again.

e. Have them sing the song. Introduce the 'ukulele when they know the song comfortably well.

2. "Hawaiian Lullaby"

Source: Music sheet available at music stores.
Recording: Melveen Leed's Grand Ole Hawaiian Music Nashville Style, LP, Lehua Records, SL-7053.



## ART

M. Creating and Designing: Ānuenue (rainbows)

Materials needed:

Oaktag - 24" x 36" or
Cardboard 24" x 36" or larger
Crêpe paper (rainbow of colors)
Glue
Rulers
Scissors

Preparation:

- A week ahead of time, ask the children to bring in cardboard sheets. This art lesson should follow the lesson in music dealing with rainbows. Ask the children to look for rainbows throughout the week and to note the colors and the sequence of how they appear from top to bottom.

- Encourage the children to read about rainbows in poems, stories and science or reference books. Have them share stickers, stuffed rainbows, or rainbow clothing they may have at home.

- Have the children compose a poem about a rainbow; it may be about a rainbow itself or about what a rainbow represents in the student's life.

E.g.
"My Rainbow of Loves"
"A Rainbow of Activities"
"My Special Rainbow of Flowers"
Etc.



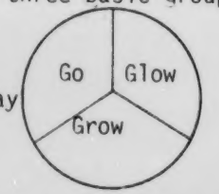
## HEALTH/FOOD AND NUTRITION

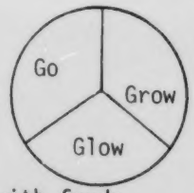
B. Studying the basic food groups can help families plan more healthful meals.

Preparation:

After the children have studied the food plants and animals of early Hawai'i (see activities A.4.f.1-7, pp. 85-89). use the foods classification chart to develop more awareness of good nutrition.

Set up two large bulletin boards showing the three basic groups:

Today 


Early Hawai'i 


One bulletin board will deal with foods the children eat today. The second bulletin board will deal with foods the early Hawaiians ate.

1. Ask the children to write what they ate for breakfast on a sheet of paper.

   a. Have them check to see if their breakfast consisted of foods from all three groups.

   b. Discuss the three categories to be sure the children understand the terms.

   c. Start with the "Go" category. Ask the children to identify the breakfast food on their menu that is a "go" food. Write

## SOCIAL STUDIES

3. Study some of the small farming going on today (as opposed to large agri-business like sugar and pineapple).

   a. Visit a small farm nearby if available and talk to the owner about the following:

      1) Natural resources needed to have a successful farm.

      2) Machinery, tools, equipment and raw goods needed in order to run a successful farm.

      3) Money needed to keep the farm operating - yearly profit.

      4) Marketing practices.

      5) Pests and insecticides.

      6) Weed control (herbicides).

      7) Size of the farm and amount of production.

      8) Length of time for growth before harvest.

   b. Compose a worksheet that could be used for data gathering. See Appendix Unit II-J, p.144 for a sample that could be used.

   c. Encourage the children to visit the library to borrow some books on small truck farming or on farming in Hawai'i. Some sample book titles are:



## SCIENCE/ENVIRONMENTAL EDUCATION

      3) Talk about fruit vs. vegetable. Discuss the differences and then commence to have the children classify the food plants into these two categories.

2. Have the children think about their trips to the supermarket. Have them name as many vegetables and fruits as they can remember seeing in the supermarket. Add these to the wall chart or write them on two separate charts: one for fruits and one for vegetables. See General Appendix section p. 238 for the Hawaiian equivalent for some of the more common fruits and vegetables. Start a fruit and/or vegetable garden at school. Working with the school custodian can be an exciting experience for the children as well as for the custodian. The University of Hawai'i, College of Tropical Agriculture and Human Resources has many circulars available on how to plant and care for plants that grow well in Hawai'i. Contact the nearest University Extension Office on your island.

3. Encourage the children to start their own farming at home by planting at least one fruit or vegetable plant.

   a. Have them discuss with their parents their plan to become a mini-farmer/mahi'ai li'ili'i.



## LANGUAGE ARTS

4. Using the newspapers as a source of current findings in agriculture and as a textbook to teach consumer education

   Because of the importance of diversified agriculture today, there are frequent articles written in the newspapers dealing with pesticides, aquaculture, fertilizers and crop success stories.

   The Hawai'i Newspaper Agency (Advertiser/Star Bulletin) has available to all teachers, the daily newspaper, teacher guides containing practical ideas on the use of the newspaper as a reference and source of current information and filmstrips dealing with a multiplicity of topics that can be borrowed. Call the Education-Community Relations Officer at 525-7600 (605 Kapi'olani Blvd., Honolulu 96813).
   Preparation:
   Call the Hawai'i Newspaper Agency and make arrangements for ordering the newspaper for the classroom. If funds are not available, encourage the children to bring a newspaper from home.

   a. Encourage the children to read the newspaper every day before initiating this unit.

      Ask:

      1) If you wanted to find some information about an event that happened two weeks ago, like a volcanic eruption, where would you get the information?

## MUSIC

Preparation: Write the words on a chart.

a. Have the children recall the lesson in language arts on country living. Have them share some beautiful things they enjoy seeing and doing in the country. List these on the board.

b. Show them the words written on the song chart.

c. Ask:

1) Do you see any similarities between your suggestions and the words in our new song? Allow the children to point out similarities.

2) Since we live in an island environment, which of the items on the list can apply to city living also?

E.g.
Rainbows
Starry nights
Sunsets

d. Have the children read the words on the chart and then listen to the song on the record.

e. Encourage them to sing the song along with the record.

f. When they have learned the song, have them substitute some of their own suggestions from the board and compose a new verse for the song.



## ART

Procedure:

After the above activities, the children should be well motivated to produce a rainbow of their own. Have them do a rough sketch of the colors they choose to use in their rainbow.

1. Draw your rainbow on your cardboard. The rainbow width should be no less than 10 in.; the expanse it covers will depend upon the size of the cardboard.

2. After the rainbow is cut out, use the ruler to measure even bands across the front of the rainbow and draw them in.

3. Select the colors you need for your anuenue and collect the crêpe paper colors from the art table.

4. Starting at the top, brush glue onto the 1st band, one small section at a time and, crinkling the crêpe paper, begin to attach it to the cardboard or oaktag.

5. Have the children continue this process until the entire band is finished and then move on to the next band and the next color.



## HEALTH/FOOD AND NUTRITION

these contributions on the blackboard and discuss each one so the children are more aware of "go" foods. Do the same for the other two groups of food.

d. Ask the students to look for pictures of these goods in magazines to place in the food circles on the bulletin board. They will also be categorizing food onto the Early Hawaiian Food Chart. Some of these Hawaiian foods may have to be drawn by the children.

2. Have available copies of the school lunch menu. Ask the children to form mini-'ohana of about 3-4 children. Hand out copies of Appendix Unit II-FF, p. 222 to each 'ohana. Have the children select a week's menu from the school lunch chart. They will take each day's lunch and place the food items in the right category. They will then decide as an 'ohana if each day's menu has food from each basic food category. If so they will check "yes". Encourage the children to have fun with this activity. This is a good opportunity for them to practice their 'ohana concepts.

3. Have the children plan an 'ohana menu with their parents and family members based on the three food categories. The menu should be for one week.

a. Have the children share their menus in class by collecting all of them and compiling them into a typical school lunch format.

## SOCIAL STUDIES

Johnson. About Truck Farming.
Philipp. Diversified Agriculture.
Roth. The Farm Book.
Watson. Plants are for People in Hawai'i.

Ask them to read the books for information and share the information with others.

d. Have the children seek out a person doing truck-farming or other small scale farming in the community. Using the worksheet mentioned in activity #3b above, ask the children to gather some information on the farm.

e. Set up a master classroom retrieval chart. Have the children share their information and record the information on the master chart. Study the similarities and/or differences. Discuss why these varieties in farming exist.

f. Study the present problems of farmers:

distribution of produce
long hours of work
market competition
natural phenomena (storms, hurricanes, winds, drought)
pests
poor soil
water availability and distribution

1) Have the children determine whether or not the problems can be remedied. If so, how?



## SCIENCE/ENVIRONMENTAL EDUCATION

b. When they have chosen a plant to work with, have them keep a daily journal of their activities which may include:

1) size of plot

2) tools used

3) amount of seeds or seedlings planted

4) daily growth of the plant

5) names of people who help (kōkua)

6) fertilizer used

7) problems encountered, etc.

c. Encourage the children to have discussions with each other so that they can learn from one another.

d. When a common problem occurs they can do research in books and pamphlets as to how to best solve the problem.

e. This will also lead to a bigger interest in the effects of pesticides.

4. Create a curiosity in the students by having them do the following activities:



## LANGUAGE ARTS

2) What kinds of information can you find in a newspaper? (List the children's contribution on a chart.)

b. Ask the children to scrutinize the papers for articles dealing with farming, agriculture, pesticides, fertilizers, farm problems, water shortages.

c. Have them share these articles in class. Talk about the content of the articles and have the children share main ideas they gathered from the articles.

d. Ask the students to pin their articles to the bulletin board. Decide on categories that these articles can be placed in.

E.g., water needs
farm problems

e. Encourage the children to engage in discussions of controversial topics. Record questions they may have about the issues and plan activities that will enable them to find the answers.

f. Have the children staple their newspapers along the left side so that it makes for easier handling. Encourage the children to sit on the floor and spend time looking through the newspapers, discussing things that interest them. Observe and note the sections of the paper that interest them and use these popular sections as motivation to read the daily paper.

## MUSIC

g. Have them share their new compositions. Some of them may be willing to sing their compositions.

3. "Got to Get Away"

Source:
See Appendix Unit II-HH, pp. 224-226.

Recording:
Cecilio and Kapono, LP, Columbia Records, KC-32928.

Preparation:
Write the words on a chart and have available another wall chart. Cover the chart with the words with a cover sheet.

Procedure:

a. Have the children read the words and talk about the feelings of the composer.
... the need to get away from the busy life of the city.
... the desire to raise a family in the country.

b. Ask the children to share reasons why people like to go to the country.

c. Introduce Cecilio and Kapono to the children by reading the back cover of the record album. Then play the song for them as they follow the words on a chart. Encourage them to feel the music.



## ART

6. When they are completely done, their rainbows should be mounted on a bulletin board along with their poems. This could be an effective way to get children to be more aware of each other and to have more respect for one another.

7. Have each student share his/her poem and rainbow with the class.

N. Drawing: "My Favorite Kupuna"

Materials needed:

Cra-pas
Drawing paper - 12" x 18"

Procedure:

1. After the children have selected the kupuna to interview in language arts, ask them to observe the kupuna closely, especially their manner of dress, their mannerisms, the color of their hair, eyes, and skin and their favorite activity.

2. Have the children draw a picture of their favorite kupuna engaged in his/her favorite activity. Save these pictures and share them on kupuna day in your school.

O. Watercolor Painting: "My Hawaiian Country"

Materials needed:

Brushes
Butcher paper - 24" x 36"
Tempera paint



## HEALTH/FOOD AND NUTRITION

b. Encourage the children to share how they worked with their families.

c. Point out the variety of cultural foods and those foods that are mentioned most frequently by the children

d. Encourage the children to motivate their parents to use some of the class menus at home.

4. Compose a letter to the parents informing them of your activities in the classroom and enlist their kōkua in this effort to improve nutrition in the school and home.

a. Ask the parents to plan the shopping list for a week based on one week's menu.

b. Have them take their children to the supermarket to help with the shopping. Encourage the children to look for high nutrition foods and snacks.

5. Encourage the children to look for newspaper articles dealing with nutrition and health.

6. Talk about the number of fast food restaurants in the community.

a. Ask the children to study the contents of the food products sold at these outlets. E.g., What are we eating when we bite into a typical commercial hamburger?

## SOCIAL STUDIES

E.g., Pests: Consult the State Dept. of Agriculture to determine the best pesticide to use to eliminate a particular problem.

2) Study the recent discoveries made about some of the chemicals that are being used to control pests. These are available in the newspapers and in printouts from the Department of Agriculture. See Appendix Unit II-K, pp.145-148 for some news articles dealing with EDB.

g. Ask the children to think of differences between farming in Hawai'i and farming in places like Wisconsin, Idaho or Washington. Lead them to a discussion of the seasonal changes in most of the states.

1) How does this affect the selection of crops?

2) What do farmers do when the land is covered with snow?

3) Does Hawai'i have a no-crop season? What advantages do we have because we have moderate weather all year long?

h. Look at some recent data on farming in Hawai'i. See Appendix Unit II-L, p. 149. Conduct a lesson on reading a table of information. Have the children scan the table to see what kind of information is being displayed. Ask them a series of questions.

## SCIENCE/ENVIRONMENTAL EDUCATION

a. Have available one each of the following fruits or vegetables: cucumber, tomato, citrus fruits, papaya, melon, guava, string bean, peanut, sunflower seed.

b. Have the children predict what they will see when you cut each fruit or vegetable open.

c. As each is cut open, pass samples of the inside to all of them so they can observe the seeds carefully using hand magnifying glasses. Have them make comments about:

1) How many seeds are inside each fruit or vegetable?

2) What is its shape?

4) How does it feel (texture)?

5) What color is it?

d. Have the children draw their conclusions on where seeds come from. If necessary, read an excerpt from a reference book like an encyclopedia or a science book.

e. On the bulletin board write the title, "What is a seed?"

1) Have the children write their answers on 3" x 5" cards. Have them pin their card on the board after they read them aloud to the class.

## LANGUAGE ARTS

g. Select a picture from the paper dealing with agriculture and have the children write a story. This can be a class story or an individual one. Compose a headline for it.

h. Encourage the children to note the comics and cartoons. Have them create cartoons that go along with their studies in social studies and science.

i. Study the editorial section of the newspaper. Ask the children to bring in the editorial sections of their newspapers.

1) Have them scan the editorial. Ask them to share what they find different about the topics and the nature of the written material.

2) Have them select one editorial to read carefully and then share with the rest of the class.

3) Have them close their sharing by stating their opinion.

j. Ask the students to think about things and events in the community that need to be brought to the attention of the public.

E.g.
Not enough water for kalo farmers.
Insufficient drainage in some farm areas.

## MUSIC

d. Play the song again and encourage the children to sing along. Some of them may already know the song. This is not a simple song to learn but the children will enjoy the rock beat.

e. As the song becomes more familiar to them, have them compose another verse for the song using their own thoughts about country living.

f. Encourage the children to share their verses with the class and with others.

4. "My Hawaiian Country"

Source:
See Appendix Unit II-II, pp. 227-228.

Record:
My Hawaiian Country, Melveen Leed, LP, Lehua Records, SL-7022.

Preparation:
Write the words of the song on a chart. Have available pictures of country scenes of your island.

Procedure:

a. Talk about the country scenes on the bulletin board and have the children add more to the scenario by describing some interesting scenes they themselves have seen and enjoyed.

b. Mount the song chart and commence to discuss the composer's impressions of his/her Hawaiian country.



## ART

Procedure:

1. Using the thoughts and feelings expressed in music, ask the children to paint their favorite Hawaiian country whether it be an ocean or mountain or forest or midland scene. Have the children include all those things that make them happy and relaxed.

2. Remind them about filling up the entire sheet with interesting things in the environment.

3. Demonstrate the use of brush strokes to create texture in the painting.

4. Encourage the addition of some 3-D material to add interest to the painting. E.g., Real sand on the beach.

5. Have each student share his/her finished painting and tell about the place it describes. If there is a song that describes the place, ask the student to find the source or recording or someone who can sing it. The song should be taped and shared in class or the community resource person may be brought to school to sing for the class and to teach the song.

O. Poster: "The Nutri-Sandwich"

Materials needed:

Pentels
Poster paper



## HEALTH/FOOD AND NUTRITION

b. Ask the students to itemize each food item in such a hamburger.

E.g.
1 T. mayonnaise
1 slice processed American cheese
1 ¼ lb. hamburger
1 tomato slice, etc.

c. Try to find out how many grams of fat, milligrams of sodium and calories a hamburger contains.

d. Determine if a commercial hamburger contains the Basic 3 foods - Go, Glow, Grow foods.

e. Encourage the children to create a sandwich that contains the Basic 3 foods. Have them prepare it at home and bring it to school for lunch with a nutritious drink. Plan that day when everyone will bring to school a nutrition rich sandwich which they created.

f. Ask each student to give their newly created sandwich a name and write a ditty about it that can be used in advertising. Have them design a special bill board for the newly created sandwich. See art activity #O on this page.

C. Planning meals around seasonal foods can help cut down on the cost of food.

1. Ask the children to name some of the foods in the market that seem to be plentiful during one season and not another.

## Social Studies

E.g.
1) What time span does this agricultural summary cover?

2) How many farms were there in 1978 compared to 1964?

3) How many acres of land were farmed in 1964 compared to 1978?

4) What was the average value of the land and buildings in 1964 compared to 1978?

5) What are some generalizations we can make about farming based on this data sheet? Etc. Appendix Unit II-M, pp. 150-153 contains more data on agriculture in Hawai'i. Conduct more study sessions on these sheets and see how much information the children are able to obtain from the sheets.

j. Elicit some generalizations from the children based on the information contained in the tables in Appendix Unit II-M. Have the children contribute statements like:

(Based on the information on Table 494 of Appendix Unit II-M)

1) The acreage of sugar and pineapple has been decreasing since 1972 while the acreage in diversified products has been increasing.



## Science/Environmental Education

2) Have all of the children look up "seed" in a dictionary. Write the definition on the chalk board and see if any prediction came anywhere close to it. Place a marker or sticker on those cards.

f. Ask the children: What can we do with seeds? Have them think of the many things we do with seeds today.

E.g.
Eat them
Plant them
Sew them into lei
Use them as feed for chickens and other birds.
Make artful decorations
Use them as counters in a game
Etc.

1) Have the children bring in a variety of seeds in separate sandwich bags labeled correctly. Those that they do not know should be in a bag with no label.

2) Encourage the children to compare their seeds with each other. Have them lay their seeds on their desk and commence to classify them into edible/non-edible categories.



## Language Arts

1) Have them talk to farmers (see social studies lesson f on p. 100) to find out some of their concerns.

2) Encourage them to explore their neighborhood and community for problems.

3) List the problems on a chart. Discuss the problems and have them suggest some solutions.

k. Have the students decide upon one problem or concern about which to write a letter to the editor.

1) Have them write a letter to the editor stating their concern.

2) In the letter, have them express their feelings about Hawai'i and possible solutions to the stated problem.

3) Send the letters to one or both of the daily newspapers.

l. Introduce the children to other sections of the newspaper to increase their awareness of the kinds of information available to the reader.

1) Classified ad section for those people interested in buying farm land or selling farm land.

2) Satellite weather map section indicating weather, tides, moon phase and temperatures of interest to farmers.

## MUSIC

c. Ask:

1) What kind of country is the composer describing?

2) Are you familiar with Kamuela?

3) What is a paniolo?
Identify a paniolo for the children. Show them pictures of Hawaiian paniolo. Some references to use are:

Brennan: Paniolo.
Feher. Hawai'i: A Pictorial History.

d. Locate the places named in the song on the wall maps. Have the children share their experiences in those places.

e. Play the song for the children as the children keep their eyes on the words. Have them raise their hands when they hear a familiar repeat in the song.

f. Have them say the words in rhythm and then sing the song with the record.

g. Sing the song using the 'ukulele as an accompaniment. Teach the children the 'ukulele chords for the song. Have them accompany themselves as they sing the song. Have them listen for key changes in the song and determine where changes need to be made.

h. Encourage them to practice by setting up a practice corner to which they can go during recess and other free periods.



## ART

Preparation:

A few days before this activity, have the children cut out advertisements from the newspaper for MacDonalds, Burger King, Jack in the Box and other fast food places. Ask them to watch TV commercials and observe the techniques they use to sell the sandwiches.

This activity goes along with Health/ Food and Nutrition lesson #6 on p. 101.

Procedure:

1. Have available samples of effective advertisements. Ask the children to share the collection of ads they cut out of newspapers and magazines. Talk about the "effective" ones and discuss why they are effective.

2. Mount the "choicest" ads on the bulletin board and have the children tell what specific feature pleases them or attracts them to the ad. Write a list of features that they contribute as being effective or attracting.

3. Have the children compose a poster type advertisement for the sandwich they created in Health, activity 6.e., p. 103. Ask them to pay special attention to the list of characteristics for the "choicest" ads.

4. Have each student compose an original slogan for her/his poster, which may be super imposed on the poster using



## HEALTH/FOOD AND NUTRITION

E.g.
Apples
Plums
Grapes
Watermelon
Strawberries, etc.

2. Ask:

How can one tell when a certain food is out of season? (higher cost, available in smaller amounts, more inferior quality)

3. Plan a list of foods that the children can find in the supermarket. Ask each student to find the cost of each of the items listed. Have them also write the name of the store or the supermarket.

a. Prepare a retrieval chart of their findings.

b. Have the children state some generalizations about shopping at large supermarket chains vs. shopping in country stores.

c. Have them determine which foods are out-of-season or at the beginning of the season. Note the prices. Check with the sales clerk about prices during in-season vs. prices during off-season.

4. Introduce some simulated situations like the one explained on the next page and have the children discuss the best solutions.

## SOCIAL STUDIES

2) The number of crop farms in sugar and pineapple has been decreasing while those of diversified products has shown increases.

3) The value of crop sales of most diversified products and of sugar and pineapple has been increasing since 1972. Etc.

k. Study other tables of agricultural interest found in Appendix Unit II-N, p. 154.

Table 499-500 Livestock
501-502 Flowers and Nursery Products
507-509 Fresh Water Prawns and Aquaculture

1) Encourage the children to comment on what they have learned from the tables.

2) Have them share generalizations about the agricultural picture in Hawai'i over the past ten years.

3) Encourage them to make some statements about Hawai'i's future in diversified farming based on the statistics they've studied on the tables.

l. Plan a field trip to a nearby farm in your community. Have the children prepare a list of concerns or questions they would like to have answered such as:



## SCIENCE/ENVIRONMENTAL EDUCATION

3) Have them help each other identify their "unknown" package of seeds.

4) Have available some references that they can refer to for verification.

E.g.
Carlquist. Hawai'i a Natural History.
Neal. In Gardens of Hawai'i.

5) Have the children determine which seeds are poisonous. Some of them may have already labeled some poisonous seeds.

E.g.
Coral plant
Castor Bean (pā'aila)
Apple of Sodom (pōpolo kīkānia)

See Common Poisonous Plants of Hawai'i, a brochure in all school libraries prepared by the Health Education Office, Department of Health.

6) Give each student an 18" x 24" oaktag sheet. Have the children organize their seeds on the chart in a way that is meaningful to them. Have them use clear sandwich bags or scotch tape. The labels may be printed on or they may be typed on gum labels and applied. Encourage them to



## LANGUAGE ARTS

3) Global Report section that relates news from all over the U.S. and the world dealing with a multiplicity of topics.

4) Advertisements that publicize products, goods and services, interest rates for banks and loan companies, current prices and quality of goods and services.

m. Conduct some consumer education activities:

1) Have the students select a food item from the advertisements by supermarkets. Have them note the brand and size and quality and follow the price of the item for a month. Compare the price of the item as advertised by different supermarkets or stores.

Ask:

a) Why do the prices differ?

b) Are weekend prices different?

c) What is the difference in price of a food item on special as opposed to its regular price?

2) Have the children write a shopping list of groceries. Using their newspaper ads, have them compare the prices of 2-3 supermarkets.

## MUSIC

5. "Happy Hawaiian Music"

   Source:
   See Appendix Unit II-JJ, pp. 229-231.

   Recording:
   Melveen Leed's Grand Ole Hawaiian Music Nashville Style.

   Teacher preparation:
   Write the words on a wall chart.

   Procedure:

   a. Have the children read the words silently as one child reads them out loud.

   b. Talk about the meaning of the words.

   c. Ask the children:

      1) How many of you enjoy listening to Hawaiian music?

      2) How many of you listen to a Hawaiian music station? What stations play a lot of Hawaiian music? (KCCN on O'ahu) Encourage the children to listen to KCCN on O'ahu or a similar station on the neighbor islands for at least 20 minutes a day. This will help expose them to more Hawaiian music.

   d. Play the recording for them. Encourage them to respond to the music by clapping, stamping their feet, or swaying their bodies.



## ART

cut letters, or written using block letter stencils.

5. When the posters are completed, mount them in a location visible to other school children. E.g., the school cafetorium.

P. Drawing: Creative Cartoons

Materials needed:

Drawing paper - 12" x 18"
Pentels

Preparation:

As the children study the newspaper, have them cut out some of their favorite cartoon strips and compose a booklet of "Favorite cartoons."

Procedure:

1. Talk to the children about cartoons and what they are supposed to do. Have the children look up this word in a dictionary. E.g., "a drawing depicting persons, political events, etc., in an amusing way."

2. Ask: "What do you call a person who draws cartoons?" (cartoonist)

3. Explain that they are all going to be cartoonists and will be drawing cartoons or comic strips about people or events.



## HEALTH/FOOD AND NUTRITION

E.g.
An unexpected hurricane hits the Hawaiian islands and damages much of the banana fields. As the director of a large chain of supermarkets throughout Hawai'i, what would you do to supply Hawai'i with bananas? What would happen to the price? What would be a good fruit to eat as a substitute until the price of bananas stabilizes?

D. Hawai'i produces a number of food products.

Food products come in a variety of "packages." Select one food product of Hawai'i and have the children learn as much as possible about its processing and marketability. Pineapple is used as the sample food product in this lesson but teachers can substitute other products such as sugar, macadamia nuts, fruit juices, Kona coffee, tuna, candies, etc.

1. Ask the children to think of the many ways they have eaten pineapple and list these on a wall chart.

   E.g.
   fresh
   canned chunks
   canned, crushed
   frozen
   cakes
   muffins
   breads
   sherbet
   sauce

## SOCIAL STUDIES

1) How many acres of land do you have planted in _____.

2) How many workers do you have to help with the farm?

3) Do you use pesticides to control the pests that infest your crop(s)?

4) To whom do you sell your product? What is the marketability of your product?

5) Is your product profitable for you and your family?

6) Do you plan to continue being a farmer in the future? Etc.

If it is impossible to have the class visit a farm, invite a farmer to come speak to the children.

m. Plan some post-field trip activities. E.g.

1) Have the children write thank you letters to the farmer.

2) Ask the children to draw a picture of the farm.

3) Set up a retrieval chart showing the facts and concepts the children learned on the field trip.

4) Encourage the children to write a letter to the governor to encourage state support for small farmers.



## SCIENCE/ENVIRONMENTAL EDUCATION

talk about their arrangement and justify their classification system.

5. Ask the children to bring in the tops of pineapple that their parents may have bought from the supermarket. If not available, call a pineapple company office on your island and ask for some pineapple tops.

a. Have a community resource person who is affiliated with the pineapple industry come in to talk about how pineapple can be planted in a home garden. Plan for a question and answer session so the children can ask questions.

E.g.

1) Where should we plant the pineapple? (half day sun or full sun area?)

2) What is the best fertilizer to use?

3) What kinds of problems can we expect?

4) How often should we water the plant?

5) How can the top of a pineapple produce a new plant?

b. Plan for the planting of the pineapple with the custodian.



## LANGUAGE ARTS

3) Compare the price of local milk and eggs with those from the mainland. Discuss the differences in price and the reasons for it.

4) Compare the price of other farm products that are shipped to Hawai'i from the mainland:

meats plums
apples grapes
oranges

Ask:

Are local fruits (e.g., pineapple) less expensive than mainland fruits? Why or why not?

5) Ask the students to select one advertisement that appeals to them. Have them share reasons why they selected the ad.

a) Ask them to share the kind of data available in the ad. E.g., cost, brand, description, etc.

b) Have them think of a product they would like to advertise. Ask them to sketch a draft and have it ready for art class.

c) Conduct a show and tell session and post the finished sketches. Encourage the children to present a TV commercial style of sharing.

## MUSIC

e. Play the recording once more and have them sing along.

f. Have the children identify the instruments they hear in the song. Ask them to listen to the recording once more and identify as many of the instruments as they can.

E. Songs describing the love of composers for their home island and/or a particular hometown.

1. "Moloka'i Memories"

Source:
See Appendix Unit II-KK, p. 232.

Recording:
Melveen Leed's Grand Ole Hawaiian Music Nashville Style, Lehua Records, SL-7053.

Teacher preparation:
Have available the wall chart map of Moloka'i and some scenic photographs of Moloka'i, especially those sites named in the song.

Procedure:

a. The children have already become familiar with Melveen through her record introduced earlier. Another interesting fact to present is her love for Moloka'i, her home island. Jay Larrin, a well known singer and composer in Hawai'i today, composed this song for her.

b. Go over the words of the song and talk about the feelings expressed in the song.



## ART

4. Have the children select their favorite comic strip and draw a strip of their own using another episode in the lives of the characters, or draw a continuing event for the strip. They may choose to create cartoon characters of their own.

5. Some may choose to do a cartoon caricature of some political entity or of a friend or community person.

6. Encourage the children to keep practicing drawing the cartoons until they are ready to do a finished product.

7. Have all of the comic strips drawn in 4" x 6" boxes, four boxes per strip. When the strips are done, have them cut out and displayed on the bulletin board.

8. Set up a cartoonist corner to which the children may go during free time to sketch more cartoons. Collect these contributions and compile a class booklet of cartoons.

Q. Drawing: "My Moloka'i Memories"

Materials:

Cra-pas
Drawing paper - 24" x 36"

Preparation:

This activity should take place after the children have learned "Moloka'i Memories" in music.



## HEALTH/FOOD AND NUTRITION

2. Have them share the many ways they have seen pineapple marketed in the store.

3. Have available some sample packaging of pineapple

E.g.
canned in 4 oz. cans
canned in 12 oz. cans
fresh in boxes
frozen in boxes
juice in paper containers
etc.

Ask the students to look for varieties of pineapple products sold in the supermarket and jot down the size of the packaging, the cost and the nature of the content.

4. Reflect on the seasonal concept. Does the price of pineapple reflect the on or off season of the fruit?

5. If you have children with mainland connections, have them find out the cost of the Hawai'i-produced food (pineapple, sugar, etc.) in various places on the mainland. Have them speculate on reasons for higher or lower prices than here.

6. Plan a trip to the pineapple field or cannery to learn more about the processing of pineapple. Ask for available data on the processing of the fruit.

## SOCIAL STUDIES

5) Start a mini-farm in school. (See Science lesson in the next column.)

n. Study farming in other countries by reading about it in books and in encyclopedias. E.g., the children can learn about the plight of farmers in Mexico by reading Sam and Beryl Epstein's book Mexico., pp. 34-37. They can read about life as a truck farmer by reading Irma Johnson's About Truck Trucking. They can read about farming in different countries throughout the world by reading Louise Floethe's Farming Around the World.

1) Encourage the children to visit the school and regional libraries to find more books on farming in different countries. As the books become available, comparisons can be made. Also, similarities and/or differences can be charted on a wall chart. See Appendix Unit II-O, p. 155 for more book titles.

2) Set up a book corner so that the children can read during their free time and study time.

3) On a wall map, place mini-flags of those countries about which the children find information.

4) Call community persons to share their knowledge about farming with the children.



## SCIENCE/ENVIRONMENTAL EDUCATION

c. Set up a schedule of workers that will take care of the garden each week.

d. Keep a weekly progress report on the pineapple noting the number of days before new leaves appear.

6. Have the children experiment with plants to discover the effect of environmental conditions on the growth of plants.

Teacher Preparation:
Several weeks before this experiment plant a number of seeds of the same species of plant in several trays so that seedlings will be available to the children by the time of this experiment.

a. Ask the children:

1) What environmental conditions are necessary for plant growth? As the children share their predictions, list them on a wall chart. Some sample answers may include:

- types of soil
- amount of sunlight
- amount of water
- types of fertilizers
- type of climate
- fluctuations in temperature

2) How can we go about testing how these conditions affect the growth of plants? List their suggestions on a chart labeled "Experimental Activities."



## LANGUAGE ARTS

n. Ask the students to cut out pictures from the newspapers dealing with farming. Remove all the captions. Give the children practice in writing headlines for the pictures. See Appendix Unit II-DD, pp. 209-217 for some samples.

o. Ask the students to look for unusual headlines. Have them exchange headlines with someone else and write newstories for the selected headline. Remind them to answer the questions WHO, WHAT, WHEN, WHERE, WHY and HOW!

p. Encourage the children to look for news articles dealing with scientific research, especially in the area of fertilizers and pesticides.

1) Have them read about the effects of these chemicals on plants and presence of some of the chemicals in the by-products.

2) Start a class scrapbook of science articles and encourage the children to write their opinions about the use of chemicals on plants.

3) Motivate the students to do research on some of the chemicals used by the farmers. Ask them to share their findings through share-and-tell time and/or a special TV news broadcast. See Appendix Unit II-EE, pp. 218-221 for some sample news articles.

## MUSIC

c. Play the recording and have the children follow the words on the chart.

d. Have the children read the words in rhythm and then sing along with the record.

e. Play the record again and have the children identify the instruments. Talk about the country style music and the change in rhythm that takes place in the song.

2. "Across the Sea"

Recording: same as song #1 above.

Source:
United Artists Music, Songs of Hawai'i, pp. 27-29.

Preparation:
This is a simple four line song written by Ernest Ka'ai, Ray Kinney and Johnny Noble. Have the children listen to the recording and write the words as they hear them. Allow the class to hear the words more than once. After they have written the words, review the lyrics and write them on a chart.

a. Play the song for the children and have them relate to the feeling of the music. Ask them: Why do you think the composer wrote this song? (He was probably away from Hawai'i and wanted to go back home.)



## ART

Procedure:

1. Have available the song chart with the words to the song "Moloka'i Memories."

2. Underline with a red pen all the lines that the children feel express a description of a scene. Talk about these scenes and have the children think of places on their island that represent the description.

3. Have the children do their sketches of the "Moloka'i" they see in their minds based on the words on the chart.

4. Play the record for them as they do their art work. Encourage them to use the entire sheet for scenery and action; avoid large spaces of sky.

5. Encourage the children to do other drawings of "favorite places" to expand their sensitivity to their environment.

R. Movie roll: A Day on the Farm

Materials:

Craypas
Drawing paper - 8½" x 11"
Masking tape

Preparation:

This lesson should follow the social studies field trip to a farm. See activity #1 in social studies on p. 106.



## HEALTH/FOOD AND NUTRITION

7. Encourage the children to become well acquainted with the nutritional value of pineapple and with its uses in the home as well as in the community.

a. Ask the children to look for favorite recipes using pineapple. Plan a class recipe book.

b. Involve the parents in sharing some favorite preparations using pineapple as a main ingredient and have a class luncheon planned around the multiple uses of pineapple.

E.g.

| | |
|---|---|
| main dishes | fruit cocktail<br>sweet sour spare ribs<br>baked ham<br>sweet sour pork |
| salads | cole slaw<br>frozen jello mold<br>fruit ambrosia salad |
| desserts | pineapple sherbet<br>pineapple upside-down cake<br>chinese candied pineapple<br>pineapple nut bread<br>pineapple cup cakes |

8. Study the uses of the by-products. E.g.,

a. The outside shell is ground up and sold as cattle feed.

b. Other parts are used for fiber for making cloth in the Philippines.

c. Juice is made from the cores.

## Social Studies

5) Encourage the children to consult encyclopedias for current information about each of the countries studied.

6) Compile a list of modern farm machinery used on farms. Have the children consult books, encyclopedias, basal texts. Set up a bulletin board display of these machines. Have the children write a few lines on a card that describe the function of each machine.

7) Check the TAC Video Guide for some video programs that can be used to increase the children's awareness of agriculture in Hawai'i as well as in other countries. See Appendix Unit II-N, p.155 for a list of some video holdings available through TAC (Technical Assistance Center). Neighbor island teachers should contact their district office to see which of these video cassettes are available.

4. Study a local fishing community or area on your island.

a. Discuss the following questions:

1) When the first Polynesians arrived in Hawai'i, they needed a ready source of food. What do you think was available for them to eat? Allow the children to predict. Accept all of their answers; write them on a chart.



## Science/Environmental Education

b. Initiate the first experiment with the children. Have them test for the effects of soil and water on plant growth.

1) Set up a series of 12 pots or milk cartons, four in each of three rows. Fill each carton in column 1 with sand, column 2 with sand and soil, column 3 with good garden soil and column 4 with hard clay soil. See diagram below:

| | Col.1 | Col.2 | Col.3 | Col.4 |
|---|---|---|---|---|
| Row 1 | ☐ | ☐ | ☐ | ☐ |
| Row 2 | ☐ | ☐ | ☐ | ☐ |
| Row 3 | ☐ | ☐ | ☐ | ☐ |
| | sand | sand/ soil | good soil | clay |

2) Have the children transplant a seedling in each of the twelve pots.

3) Set up a watering plan with the children. Have them decide how to test for the water variable. An example schedule of watering could be:

Water row 1 every day
Water row 2 three times a week
Water row 3 once a week

4) After several weeks of this activity, assess the results.



## Language Arts

q. Use the sports section to motivate the children's interest in fishing.

1) Have the children look for pictures of fish in the newspaper that were caught by sport fisherpersons. Ask them to cut out the news articles and select exciting parts to read to the class. Mount the picture on a bulletin board entitled: "My First Catch."

2) Ask the children to ask their parents for pictures of fishing expeditions they may have gone on with their parents. Have them compose a show-and-tell chart with the pictures. Ask them to be sure they know the names of the fish in their pictures.

3) Begin a list of the fish and/or seafood the children mention in the talks. Have the English as well as the Hawaiian words for them.

4) Creative writing:

Ask the children to select a fishing picture from the newspaper or from the bulletin board. Motivate them to write a creative and imaginative fishing experience written in the first person. Have them include other people in the story, date of the experience, method of fishing used, name of the fish caught, where caught (deep sea, mid-ocean, or reef), and what they did with the fish.

## MUSIC

b. Play the recording again and have them listen to Melveen's style of singing the song. Talk about the way she uses her voice to suggest longing and love for Hawai'i.

c. Have them sing the song.

3. "Nā Pana Kaulana o Keaukaha"

This song describes the famous places of a beloved area in Hilo called Keaukaha. It was written by Edith Kanaka'ole, a truly remarkable Hawaiian kupuna.

Source:
Jacket of the record album listed below.

Recording:
Hi'ipoi i Ka 'Aina Aloha, LP, Hula Records, Edith Kanaka'ole, HS-568.

This record album reflects aloha 'āina, love for the land. The songs describe the relationship of people to the 'āina and the beautiful plants that flourish on the land and in the sea.

a. Introduce the children to Edith Kanaka'ole by telling them about her life style and great accomplishments. (See the inner cover of the record album.) Write her Hawaiian name on the chalk board. Encourage the children to sound out her name.

b. Ask the children to locate Keaukaha on the map of Hawai'i. Have available brochures from the Hawai'i Visitors Bureau that contain detailed maps of the island of Hawai'i. Find as much information about this town as is available.



## ART

Procedure:

1. Ask the children to list the most exciting events in the life of the farmer they visited.

2. From this list have them select 5-6 of the most impressionable activities and sketch them, one on each page.

3. After the sketches are completed, have the children tape them in proper sequence using masking tape.

4. Have them prepare a title page for the movie roll and practice presenting it to the other children.

5. Allow time for each student to present his/her movie roll to the class.

S. Clay: "My Favorite Farm Animal"

Materials:

Clay (ceramic)
Clay boards
Clay molding tools
Ice cream sticks
Newspapers

Preparation:

Have the children cover their desks with newspapers and place a clayboard on each desk. Cut the clay into desired pieces and place one on each clayboard covered with a damp cloth.



## HEALTH/FOOD AND NUTRITION

9. Conduct an inquiry into the pineapple cultivation process.

Ask:

a. What kind of soil conditions are necessary for growing pineapple?

b. How much water does it need?

c. What fertilizers and pesticides are necessary to keep the plant healthy?

d. What part of the pineapple do you plant?

e. How long does it take to grow to maturity?

f. How many fruit does one plant produce?

g. How are the fruits picked and taken to market?

Elicit more questions from the children. Write all of the questions on charts and commence to plan activities with the children for finding answers.

10. Invite community resource persons to come to the classroom to share their knowledge:

E.g.
Cannery workers
Field workers
Machine operators
Warehouse workers

## SOCIAL STUDIES

a) Read from Betty Dunford, The Hawaiians of Old, pp. 26-27. These pages describe some of the plants that were found in Hawai'i by the early settlers. As the plants are named, have the children check the prediction chart to see if the plants appear there. If they do, underline the name of the plant.

b) Through this activity the children will see that there were only a few plants growing in Hawai'i that were edible. Based on this reading, have them further predict which plants and animals were brought in by these early settlers.

c) Read pp. 23-25 from Dunford's book. As the plants and animals are named, underline those that appear on the chart.

d) Add to the chart those plants and animals that were not named by the children. If the children are not familiar with any of them, circle them as a clue to what should be researched in the next few days.

2) What animal food was here long before any human beings arrived in Hawai'i? (fish and other sea animals)



## SCIENCE/ENVIRONMENTAL EDUCATION

a) Which plants look the healthiest? Have available for the children a duplicated copy of a chart of all the plants in the rows with the types of soil and the watering schedule. As they observe the plants, have them circle those plants that appear to be the healthiest.

b) Have the children compare their choices. Divide them into mini-'ohana and have them analyze their findings.

E.g.
Which soil is the best for this particular plant? Which watering plan produced the best plants? Which combination worked the best? the least?

c) Have each mini-'ohana come up with some generalizations based on their findings.

d) Hold a reporting session wherein each mini-'ohana reports its findings and explanations. Compile this information on a class retrieval chart.



## LANGUAGE ARTS

Remind them to use Hawaiian vocabulary in their stories; e.g., kōkua, alu like, laulima. Refer to the General Appendix Section pp. 247-264 for information on these concepts.

5) Plan a language lesson with the school kupuna or a community resource person. Work on building some Hawaiian vocabulary for the sea by using them as teachers.

Kumu (teacher)
"He aha kēia? (What is this?)
Haumana (student)
"He 'ama'ama kēnā." (That is a mullet.)
Kumu: "He aha kēia?"
Haumana: "He limu kohu kēnā."

Pictures of seafoods or real sea foods may be used for this lesson.

6) Have the children practice reading the Hawaiian names of the fish on the wall chart done in activity #3.

7) Say the Hawaiian names of seafoods and have the children practice repeating and reading them. (Use the school kupuna in this lesson.)

8) Use the following reference to teach the children some wise sayings dealing with the sea.

## MUSIC

c. Have available the translation of the song written on a wall chart. Read the translation to the children so they can learn about each place name mentioned in the song.

d. Play the recording for the children. Encourage them to listen carefully to the language as spoken by a language expert, Auntie Edith Kanaka'ole herself, to the place names mentioned in the song, to the instruments being used and to familiar words that are used in the song such as:

kai - sea
heiau - place of worship
kūpuna - ancestors
aloha nō - beloved

e. Have them listen to the song again, refining their listening and discovering other highlights in the presentation of the song.

f. If the children respond well to the song, have them learn one to two verses of the song. Ask the school kupuna to kōkua with the pronunciation of the words. Write the words on a wall chart and have the children listen to the recording once again, this time following the words. Encourage them to sing along.

4. "Ke One Kaulana o Hawai'i"

Source: same as the above song.

Recording: same as above.



## ART

1. After initiating the social studies unit on farming, plan a farm of your own in a corner of the classroom.

2. Have the children name the animals they have seen on a farm or in pictures of farms. List these animals on a chart. Talk briefly about where animals are kept (in a barn, in a coop, in a fenced area, on a grassy knoll, etc.).

3. Have each student select one animal to fashion out of clay. Encourage them to show action in their models.

E.g.
Horse - running position
Cow - grazing
Rooster - crowing
Etc.

4. Have available cardboard, colored construction paper, glue, scissors and a variety of other art materials that can be used to prepare the scenery for the animal figures when they have been glazed and fired. Encourage the children to be creative, resourceful and to use references if necessary.

T. Printing: Fern Prints (see science lesson # e.1), p. 106)

Materials needed:

Brushes
Ferns collected in science activity
Note paper - 8½" x 11"
Tempera paint



## HEALTH/FOOD AND NUTRITION

11. Encourage the children to go to the library to look for resources and read about pineapple in reference books.

12. Learn about the status of the pineapple industry as one of Hawai'i's main industries. Check the latest State Statistics Index, news articles and University of Hawai'i data brochures.

13. Set up a bulletin board showing the many uses of pineapple.

14. Plan some creative sessions.

a. Motivate the children to write poems about this tropical plant.

b. Plan some stories of origin. Allow the children to create a story of how the pineapple got to Hawai'i.

c. Scientists are always experimenting to discover new hybrids of pineapple. Motivate the children to create a picture of a "pineapple of the future."

d. O'ahu students can visit the pineapple site in Wahiawā where they can view many varieties of pineapple. Have the children select two varieties for breeding and imagine the offspring. Draw these offspring and give them a new name.

## SOCIAL STUDIES

3) How do you suppose the early Hawaiians obtained their food from the sea? Encourage the children to make inferences based on their own experiences.

4) Do we use the same methods today? Compile a list of ways people catch fish today.

5) Where on this island can we go to see fish being caught and/or brought to shore?

6) Do any of your parents fish? Have you tried fishing? Allow the children to share their experiences.

7) What do fisherpersons do after the catch is brought in? Do they eat all that they catch, do they share it freely or do they market some of it? If so, where do they market the fish?

b. Plan some activities that fit into your schedule and community that will allow the children to have first hand experiences with the sea. Some suggestions are:

1) Visit a fishing area in your community or on your island. Plan the trip so that the children are there when the fishing boats come in with their catch. If anyone knows a fisherperson in the community, arrangements could be made to have him/her meet the children at the harbor or bay.



## SCIENCE/ENVIRONMENTAL EDUCATION

c. Similar experiments can be conducted to test for the effects of light, pesticides and fertilizers on plant growth.

See Plants: Hawai'i Nature Study Program by Sister Edna L. Demanche. Curriculum Research and Development Group, University of Hawai'i, 1980 for a resource of activities dealing with plants.

d. Encourage the children to start an experimental garden of their own at home, using as many of the findings at school to help make their experiments meaningful at home. Motivate them to share their experiments, especially if they find some interesting results.

e. Stimulate further interest in plants by suggesting some individual projects that can be undertaken by interested students.

1) Collect a variety of ferns. Identify each fern by name, Hawaiian as well as English. Study the spores using hand lens. Set up an exhibit to share with others.

2) Grow some mold using bread or an orange. Observe them under a microscope or hand lens. Describe the color, shape, texture and the object it grew on. Set up a display.



## LANGUAGE ARTS

Pūku'i. 'Ōlelo No'eau.
E.g., "Mai huli ke kua i ke kai" which means, "Don't turn your back to the sea."

a) Talk about each 'ōlelo no'eau. Have the children share why each saying was important.

b) Ask the children to memorize one of the sayings. Motivate them to read more 'ōlelo no'eau and ask their own kupuna for wise sayings from their own cultural groups.

5. Creative Writing - "Monsters of the Sea"

a. Give the children a sheet of drawing paper on which they can draw their perception of a sea monster. Have them imagine a gigantic creature of the sea that may have lived in the sea in some time of pre-history.

b. Motivate them to write a story about an encounter with the sea monster describing the events that took place, the power and size of the creature and the escape from the monster's wrath.

c. Have the children plan a series of pictures to be done in art class as a movie roll.

d. Encouage them to borrow books from the library dealing with this subject. Have them share their findings.

## MUSIC

Teacher preparation:
Have available some maps of Hawai'i from the Hawai'i Visitors Bureau. (Found in hotels, visitor centers, resort areas and airports.) The maps found in This Week, a visitor magazine, are excellent for they describe many of the places named in the songs.

Write the translation of the verses on a chart for the children to read. As each verse is read, have the children locate the places named on their maps. Following similar procedures as mentioned before, continue to expose the children to the mele of Hawai'i and to one of Hawai'i's composers.

See Appendix Unit II-LL, p. 233 for a list of songs for each of the other islands.

F. Songs about the kai (sea) and the plants and animals that live in it.

1. "Ka Uluwehi o Ke Kai"

Source:
Hi'ipoi i Ka 'Āina Aloha, LP, Edith Kanaka'ole, Hula Records, HS-568.

Recording: same as above.

Teacher preparation:
- Have available some pictures or samples of limu (seaweed) especially the ones named in the song such as pahe'e, līpoa, 'ele'ele, kohu.
- Write these words on the board.
- Write the Hawaiian words as well as the translation on a wall chart.



## ART

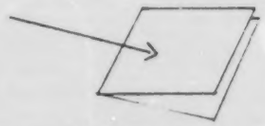
Preparation:

Wash the ferns beforehand and have them dry and ready for printing.

1. Introduce the activity by identifying the ferns that are available.

2. Ask each student to decide on a fern they would like to print and on a color paint they would like to use. Have those students using the same color paint work together at one big table.

3. Ask each student to begin by taking 5 sheets of 8½" x 11" paper and folding them in half and in half once again so that the notes are 4¼" x 5½". The children will do their prints on the face of the note.



4. Give the children a chance to practice on scrap paper before printing on the five note papers. The steps are:

   a. Lightly brush a minimum of paint on the top side or under side of the chosen fern.

   b. Turn the painted surface carefully on the face of the note card.

   c. Press gently with light taps of your finger tips making sure that the paint does not smudge.



## HEALTH/FOOD AND NUTRITION

15. Ask the pineapple company authorities on your island for some slips, crowns or shoots for planting. Start a pineapple mini-garden in your school. Have the children take care of the preparation of the ground, the planting and the nurturing of the plant.

16. Conduct a similar study of another plant on your island and do comparisons in nutrition, availability and marketing.

## SOCIAL STUDIES

See Appendix Unit II-P, p. 156.

a) Plan the kinds of questions to ask the fisherperson. See Appendix Unit II-Q, p. 157.

b) Prepare the children by having them watch at least one TV episode of "Let's Go Fishing."

c) Take the children to a fish market to see the variety of fish and sea foods that come from the sea.

d) Take the children on a trip to an ocean site to see sea life, especially life among the coral reefs and splash zones. See Appendix Unit II-R, p. 158 for a look at an exhibit at the Waikīkī Aquarium. This facility displays Hawai'i's life in the sea in large glass tanks through which the children can view living plants and animals in their natural habitat.

There are two guides that should be available in every school library:

Campsites and One-Day Visitation Sites in the State of Hawai'i
Coastal Field Sites in the State of Hawai'i



## SCIENCE/ENVIRONMENTAL EDUCATION

3) Begin a scrapbook of vegetables. Collect pictures of vegetables from magazines, newspapers, and advertisements. Arrange the pictures into categories according to which part is eaten.

E.g.

| Leaves | Roots | Stems | Fruits |
|---|---|---|---|
| kalo | sweet potato | kalo | tomato |
| lettuce | turnip | celery | avocado |

4) Select a food plant to study. E.g., sweet potato. Learn everything you can about this plant, its uses, its Hawaiian and scientific names, its nutritional value, how to plant it and how to care for it. See Appendix Unit II-T, p.162 for a sample worksheet. Some excellent references are:

Hargreaves. Tropical Trees of the Pacific.
Krauss. Ethnobotany of Hawai'i.
Lucas. Plants of Old Hawai'i.
Rock. The Indigenous Trees of the Hawaiian Islands.

5) Study the relationship between a bud, flower, fruit, and seed. Pick a plant to study that is easily visible such as the hibiscus, puakenikeni, plumeria or koa haole.



## LANGUAGE ARTS

e. Have the school kupuna or a community resource person share stories about Hawai'i's "sea creature," the Mo'o.

Source:
Pūku'i. The Water of Kāne, "Kau'ilani and the Sea Monster," pp. 123-132.
Pūku'i. Tales of the Menehune, "The Girl who Lived with the Mo'o," pp. 70-72.

1) Motivate the children to draw some illustrations showing their concept of a mo'o monster, mo'o pilikua.

2) Have the children make inquiries about mo'o legends on their island. Share these legends with other classes using a variety of illustrative materials:

film strips
movie rolls
pictures

6. Reading books and presenting reports

a. Have the children name the animals in the sea that are bigger or taller than they are. Write them on a wall chart.

b. Encourage the children to go to the library, school and regional, to borrow books on these animals.

c. Allow them to select one animal to study thoroughly and present a written report using pictures.

## MUSIC

Procedure:

a. After discussing the food plants that were available to the early settlers (see social studies column), talk about the plants of the kai. Ask the children to name some of the plants that grow in the the kai.

b. Introduce the limu names on the chalk board and share pictures and/or samples of the limu. Ask the children to share their experiences with limu: the gathering, the cleaning, the taste, and whatever other kinds of experiences they have had.

c. Talk about the availability of limu today. Ask:

   1) What has happened to the supply of limu?

   2) What has caused the disappearance of so many limu beds?

   3) What can we do to preserve what is left?

d. Prepare them for listening and then play the record.

e. By this time they should be able to identify Auntie Edith's voice and style of singing.

f. After hearing the words sung, have the children study the word chart and point out the words that are familiar to them. Underline them with a colored pen. Motivate them to learn more



## ART

   d. Lift the fern off carefully.

   e. Repeat; use another type of fern or use the same fern to do all 5 notes. If you prefer 5 different colors, move to other work centers as space becomes available.

5. Display the prints on a table display.

U. Creating and Designing: Paper sculpture - 3-D sealife

Involve the children in a series of activities that will stimulate them to be more aware of the colors, shapes, sizes and designs of those creatures of the living sea.

Materials needed:

Chalk
Colors
Construction paper of various colors
Paints
Pentels
Scissors
Shells, buttons and other objects to enhance the designs.

Procedure:

1. Have available pictures and books showing sea life. Have the children go to the library to collect information and borrow books and pictures dealing with sea life, especially Jacques Cousteau books.



## GAMES AND RECREATION

The 'āina (land) and the kai (sea) have long been a source of recreation for the people of Hawai'i. The following activities allow the children to become more aware of their ocean and land environments.

A. Building an awareness of what children can do to have fun will give the children a greater sense of caring for the ocean environment.

   1. Ask the children to share all the kinds of fun things they do at the beach. List these on a chart. If an activity is named that is unfamiliar to the majority of the students, circle it.

   2. Have the school kupuna share recreational activities of another time. Talk about the similarities and/or differences.

   3. Plan a brainstorming session. Have the children meet in mini-'ohana to design new games that can be played on the beach. Encourage the mini-'ohana to create as many as they can using the elements and characteristics of the water and the wave action, the sand and the reef, the contents of the ocean and people's ability to be creative.

## SOCIAL STUDIES

These two state environmental education guides describe in detail field trip sites available on Hawai'i, Maui, Kaua'i, Moloka'i, Lāna'i and O'ahu.

e) As the children express interest in certain kinds of sea life, have them find out how it is obtained, whether it be by nets, line and hook, hand, traps, pole and lures, etc.

f) Set up a bulletin board with a large sheet of butcher paper. Have the children plan a mural depicting the sea. As the different sea animals and plants are discovered, have them draw them on the mural which can be sectioned into three areas of the sea: reef and shore, mid-ocean, and deep sea.

2) Find a fisherperson in your community who is knowledgeable about net fishing. Invite him/her into the classroom to talk with the children about personal experiences, demonstrate net throwing, patching, caring of the nets, and to share any customs, rituals, or kapu he/she is aware of as was handed down through the years.



## SCIENCE/ENVIRONMENTAL EDUCATION

. Compile a data table showing a daily accounting of what happens to a special plant part.
E.g.

Name of Plant

| | Day 1 | Day 2 | Day 3 |
|---|---|---|---|
| Bud | small | green bud is longer | longer, bigger |
| Fruit | | | |
| Flower | | | |
| Seed | | | |

. Analyze the data and determine the steps involved in this relationship between bud, flower seed and fruit. They should end up with the following sequence: Bud-flower-fruit (containing seeds).

F. Stimulate the children's observational skills by offering them a series of activities dealing with life in the sea.

1. The smell and taste of the sea.

a. Have available two samples of water.

Sample 1 - distilled water
Sample 2 - salt water

b. Have the children smell the water in both samples.

c. Have them answer the following questions:

1) What does each sample smell like?



## LANGUAGE ARTS

d. Measure the average size of some of these giants of the sea on the floor of the classroom.

e. Encourage the children to go to whale viewing sites to watch their behavior.

7. Listening to biographies of two of Hawai'i's great ranchers.

a. Read the biography of John Palmer Parker found in Rizzuto's Hawai'i's Pathfinders. Have available a picture of Captain Vancouver, a map of Hawai'i (see Nā Ki'i Ho'ona'auao) and pictures of Parker Ranch as it is today. See Feher, Hawai'i: A Pictorial History and Scott, Saga of the Sandwich Islands.

1) Explain to the children that land ownership in early Hawai'i was unheard of. Read pp. 40-41 of Dunford, The Hawaiians of Old.

2) Discuss the following questions:

a) John Parker could not own land so how did he survive in Waimea?

b) What were some of the exciting events taking place in Hawai'i at the time?

c) Who was the king of Hawai'i?

d) Why was he reluctant to let the land become privately owned?

## MUSIC

Hawaiian vocabulary by guessing the meaning of some of the words. Using the school kupuna in this lesson would provide an especially enriching lesson for the children.

g. Talk about the meaning of the song. Have some of the children read the English translation of each verse as each verse is taught.

h. Teach the song to the children.

i. Have the children cooperate to create hula motions for each verse or have a community resource person teach the children the dance.

2. "'Ama'ama" by S. Alama

Source:
Johnny Noble Collection of Ancient and Modern Hulas, p. 24.

Recording:
Music of Old Hawai'i, LP, Sons of Hawai'i, Hula Records, H-506.

This song describes the 'ono mullet and explains the variety of ways to prepare 'ama'ama for eating.

3. "'Ōpae E"

Source:
This is Eddie Kamae and the Sons of Hawai'i. See Appendix Unit II-GG, p. 223 for the words.

Recording:
Same as above, Hula Records, H-513.



## ART

2. Have them select a fish or animal of the sea that they want to work on.

3. The children will decide which color paper to use and how to design their fish. They will draw an outline of their fish on the paper.

4. After the animal is drawn, clip another sheet of paper behind the drawing and make an identical cutout so that two sides can be obtained.

5. Decorate, add to and fill in the features such as fins, scales, gill flaps, tail shape, etc.

6. Staple the two sides of the animal together leaving an opening so the children can stuff it with crumpled paper.

7. Have each student sew twine through two places on the animal so it can be hung from the ceiling.

8. Organize the classroom so that it represents the various habitats of the ocean:

reef and shore
mid ocean
deep sea



## GAMES AND RECREATION

a. Bombing the Niu

Materials needed:

8-10 coconuts painted different colors
sand balls

Procedure:

1) Divide the children into equal teams.

2) Each team will sit and form balls made of wet sand and covered with dry sand. The team should have 25 sand balls.

3) At the signal "Pā!", the captain of each team will throw the team coconut into the water as far as he/she can. Each team member will take turns throwing sand balls at the team coconut to get it to move further out. When time is called, the team whose coconut is furthest out, wins.

When a conflict arises between teams or between individuals, the children should be equipped with skills in solving the conflict. See the General Appendix Section of this guide, pp. 265-267 and introduce the Hawaiian process of solving conflicts, called ho'oponopono.

## SOCIAL STUDIES

3) Use your school kupuna as a resource person on fishing. Have her/him share legends, stories, experiences and knowledge about living off the bounty of the sea. Ask the kupuna to especially address the subject of conservation of sea life - how to pick limu correctly, what sizes of fish to take, seasons for various fish, etc.

4) Invite the adult family members of your students of various ethnic backgrounds to discuss and demonstrate their uses of the sea and sea life.

Culmination:

Plan a poi lunch consisting of food from the ocean and taro/poi. Introduce this possibility early in the study so that parents can get involved. Activities may include limu picking and preparation, fish cleaning and preparation, crab catching and preparation and many other kinds of ocean activities.

5. Study a local ranch community or area on your island. Some example sites are:

| | |
|---|---|
| O'ahu | Kahuā Ranch |
| | Campos Ranch |
| | Kualoa Ranch |
| Hawai'i | Hu'ehu'e Ranch |
| | Parker Ranch |
| Maui | Hāna Ranch |
| | 'Ulupalakua Ranch |
| Kaua'i | Kīpū Ranch |
| | Robinson Ranch |



## SCIENCE/ENVIRONMENTAL EDUCATION

2) What gives water its odor?

3) Does the salt water sample smell like the ocean? Explain your answer.

4) Why does the ocean smell different from the sample of salt water? (This is only a small amount of water, not enough to carry some of the smell present in oceans filled with seaweed, pollutants, and other debris.)

5) Do all oceans smell alike? Explain your answer. (Ocean smells will differ according to locality. The determinants of ocean smell are those elements that are fed into the ocean and those that live in the ocean such as types of seaweed, reef animals, and other animals of the sea.)

6) What makes water smell bad?

7) What can you do to change the smell of water? (E.g., good - avoid polluting the water with garbage and sewer run off. Clean up limu that has washed up on the seashore, keeps animals away from the beaches.)

d. Have the children taste the distilled water. Then have them taste a sample of sea water.



## LANGUAGE ARTS

e) What is a kapu?

f) What kapu had been put on the killing of cattle?

g) Why was this a good kapu?

h) What is the Hawaiian cowboy called? (paniolo)

i) Do we have Hawaiian paniolo today?

j) Who taught the Hawaiians the business of cattle ranching? (The Mexican cowboys.)

k) Who owns Parker Ranch today? See Appendix Unit II-U, pp. 164-168 for some news articles about Parker Ranch and Richard Smart.

b. Read another biography from Rizzuto's Hawai'i's Pathfinders, pp. 77-84, "Anna Lindsey Perry-Fiske." This biography describes the life of a successful female rancher on the Big Island who single-handedly runs one of Hawai'i's successful ranches today.

c. Have the children identify a cattle ranch on their island.

E.g.

| | |
|---|---|
| O'ahu | Kualoa Ranch |
| Maui | Hāna Ranch |
| Moloka'i | Pu'u O Hōkū |
| Kaua'i | Robinson Ranch |
| Ni'ihau | Robinson Ranch |

## MUSIC

See science lesson #2 on p. 124 for some activities dealing with shell animals of the sea.

a. Introduce the legend behind this song (as written on the jacket of the record album).

b. Display the chart with the words written in Hawaiian. Have the children read the words and note those words that name shellfish.

c. Play the recording and motivate them to listen to the words as well as the styles of singing and of playing the musical instruments.

d. Read the English translation to the children.

e. Have them learn some simple hula motions for the song. (See the school kupuna.) Or use the English translation to create hula motions. Encourage the children to choreograph their own dance motions.

4. "Nā 'Ai 'Ono" Clarence Kinney

Source:
Same as previous song.

Recording:
Same as previous song.

This is a fun song for the children to listen to as Eddie Kamae sings about the mouth watering food at a pā'ina or a lū'au. It describes the 'ono nature of i'a lāwalu and i'a pūlehu.



## ART

Then have the children determine where their animals belong. Have each student write a name tag for their fish. Write the English as well as the Hawaiian name. Attach the label to the string. Allow the children to tell the class about their fish: where it lives, how to catch it, the best way to eat it, etc.

V. Printing: Gyotaku - Fish Printing

Materials needed:

India ink
Paint brushes (½")
Paper towels
Printing paper (newsprint)
Tempera paint thickened with soap
Variety of dead fish, flatter ones preferred for easy printing

Procedure:

1. Wash the dead fish with soap and water and place them on newspaper on cork board or clay.

2. Have the children observe the color patterns on the fish. They may want to add color to their finished prints.

3. Spread the fins apart with pins tacked into cork board or clay.

4. Have the children brush ink across the fish specimen moving from front to back. Have them put a heavier coating on the edges of the fish. Caution them to paint around the eye and not over it.



## GAMES AND RECREATION

b. Burying the Kino (body).

The children need to choose a partner. This is a relay so speed is important.

1) The children will start on the sand with their partners. At the signal "Pā!", both partners will commence to dig a hole big enough so that one person can get into it. The object is to cover the entire body of the partner with sand with only the head showing. The burial must be level with the sand, it cannot be above surface level.

2) The buried partner can be lying down with his/her head propped up above the sand level.

3) The 1st couple to achieve complete burial wins.

c. Standing-up-to-the-Nalu (wave)

The children will stand knee deep in water that has some wave action. As the waves break at knee height, they strive not to lose their balance; they have to maintain an upright position. Anyone who loses his/her balance must leave the area and sit on the sand.

## SOCIAL STUDIES

Moloka'i — Moloka'i Ranch
Lana'i — No Ranch
(Ko'ele Ranch went out of business)
(See Yellow Pages Directory)

a. Set up an interest corner with pictures of ranching life in Hawai'i. Some of these pictures are available in the following resources:

Brennan. Paniolo.
Feher. Hawai'i: A Pictorial History.
Scott. Saga of the Sandwich Islands.
VanDyke. Hawaiian Yesterdays.

b. Plan some activities for the children based on their experiencial background and availability of ranching facilities in your community.

1) Have the children share what they know about life on a ranch.

2) Plan a field trip to a ranch and have the children learn about a rancher's life today. Some aspects may include:

Breeding — Slaughtering
Feeding — Herding
Branding — Shipping
Handling

3) If a ranch visit is not feasible, read excerpts from Brennan's Paniolo, especially pp. 83-86. Share the pictures with them so they can see pictures of today's cowboys. The above pages describe the life of Hawaiian cowboys (paniolo).



## SCIENCE/ENVIRONMENTAL EDUCATION

1) Describe the taste of distilled water and sea water. Why is the sea salty?

2) Why does sea water taste the way it does?

3) Does sea water and salt water taste the same? Why or why not?

4) Do all oceans taste the same? Explain.

5) Can we make fresh water out of sea water? (Demonstrate this process if the equipment is available in your school or district.)

6) Leave two sample dishes of water on the lanai in the sun. Use different kinds of water - tap, stream, brackish, pond, sea, etc. Allow the water to evaporate. Have the children observe the contents of each dish under a microscope to see the minerals that remain.

2. The animals of the sea with shells.

a. Have the children share why some animals of the sea wear shells.

E.g.
Protection from enemies.
Protection from environmental conditions.

b. Have them share what they know about shell animals.



## LANGUAGE ARTS

d. Write letters to a rancher inquiring as to the kinds of activities available to the public, e.g.:

horseback riding
rodeo show
tour of the ranch

e. Plan a field trip to see some of the activities of a ranch. (See social studies plan.) After a day at the ranch, have the children do some of the following activities:

1) Write a description of the best activity you observed and draw an illustration for it.

2) Write a poem about the life of a rancher.

3) Imagine yourself as a young girl or boy growing up on a ranch. Write a story about an exciting event that took place on a ranch. Think of some illustrations that can be drawn to make your story more interesting.

4) Write letters of thank you to the ranchers. Include some pictures showing the most exciting thing you enjoyed.

5) Write a letter to the governor telling him/her how much you enjoyed the trip and what you think about preserving the ranching industry.

## Music

This is a listening exercise. Talk about the food at a typical country lū'au and the variety of ways the food is prepared. If the children are unfamiliar with lāwalu (broiling in kī leaves over hot coals) and pūlehu (broiling), have the school kupuna or a community resource person come in to demonstrate these processes.

a. Read the translation to the children, pointing out familiar words like:

'ono - delicious
'ai - food
kuke - cook(ed)
poi - pounded kalo
i'a - fish

b. Encourage the children to listen for familiar words and to the style of singing. Have fun with the song.

G. Singing and listening to songs about ranch life in Hawai'i

1. "Paniolo Country"

Recording:
Paniolo Country, Gabe Kila and The Nānākuli Sons, J-san Records, JSR-1974.
Source: See Appendix Unit II-NN, p. 235. This LP reflects the lifestyle of Hawaiian ranching. It describes the smells, landscape, climate, the people and the life of the paniolo. The narrations written in the jacket of the album are well worth sharing with the children. Also, the jacket cover is a panoramic color shot of the Schutte Ranch in Waimea, Hawai'i.



## Art

5. Cover the fish with the print paper, pressing evenly over the surface with the fingers.

6. Peel the print off carefully from head to tail. Add a dot for the eye and any needed colors for special effects.

7. After the prints have dried, mount them on colored construction paper and display them on a bulletin board. They may be used as a cover for a booklet on life in the sea.

W. Creating and Designing: Limu (seaweed) Pressing

Materials needed:

Oaktag cards - 4" x 5"
Several large bowls or cake pans of water
Several 12" x 18" pieces of old bed sheets.
Stacks of newspaper
Variety of limu

Procedure:

1. Set up a work area in the classroom with large tables. Place the water containers, limu and cards at several stations so that at least two students can work at each station.

2. Set up another area with the stacks of newspaper and sheets.



## Games and Recreation

d. Water-line Fun

Watch the tide calendar and pick a time when the tide is low. Take the children to the beach equipped with garbage bags, gloves, rakes and plastic collection bags.

1) The object of this game is to learn as much as you can by studying the content of the water line. Have the children study objects washed ashore by the wave action. Have them use chopsticks to push things aside; there may be pieces of glass.

2) Encourage them to keep interesting bits and pieces they find, e.g., small coral, water worn colored pieces of smooth glass, dried limu, seashells, crab shells. When they have found several things they want to keep, have them rake the beach litter into trash bags to help keep the beach clean.

3) Use the collected goodies to create a collage.

B. Creating games dealing with ranch life can build more awareness of what life on a ranch is like.

1. After studying ranch life in social studies, have the children meet in mini-'ohana to create games based on

| SOCIAL STUDIES | SCIENCE/ENVIRONMENTAL EDUCATION | LANGUAGE ARTS |
|---|---|---|
| Pp. 87-92 describe the "Seagoing Paniolos" of an earlier Hawai'i. When the cattle were ready to be shipped, the paniolo had to be extra hardy and clever in order to load the cattle on ships. Today the process is different, and is vividly described on pp. 93-96.<br><br>4) See Appendix Unit II-S, pp. 159-161 for a news article on what's being done today, 1984, to preserve ranch style living. Ask the children:<br><br>What can we do as private citizens to help preserve ranch style living? (Write letters to our legislators and to ranchers. Learn more about livestock farming and become concerned enough to do something about increasing livestock farming, etc.)<br><br>Culmination:<br><br>Visit a meat packing company and have the speaker show the children the various cuts of beef available from a single cow. Encourage the children to learn the process of preparing the fresh beef for marketing. Then visit a supermarket to see the various packages of beef. Have the children take notes on the many kinds of packages of beef. Collate this information when they return to the classroom and have the children tally which kinds of packages are bought by the majority of the students' parents. Have | Some shell animals are small, some are large<br>Some shell animals have two shells<br>Some shell animals are eaten raw, etc.<br><br>c. Encourage them to look for shells they may have in their homes and bring them to school to share. Have them look up the scientific, English, and Hawaiian names for each shell. Place these on a display table tagged correctly.<br><br>d. Take the children on a field trip to the sea shore. Have them collect different kinds of shells and shell fragments. Have books and/or charts available so they can classify and identify their shells.<br><br>e. Set up an aquarium with some salt water sea life. Include some shell animals. Have the children observe why shell animals need their shells.<br><br>1) Have the children feel the animal of a shell creature and have them explain why they think the animal requires a shell.<br><br>2) Have the children observe the eating habits of shell animals.<br><br>3) Have available books on shell animals to which the children can refer to increase their knowledge of shell animals. | |

## MUSIC

a. Use the cover of the album to create an atmosphere of ranching in the class.

b. Talk about what they see on the cover. Have them share their impressions and feelings about ranch life.

c. Locate Waimea on the map of Hawai'i. (See Nā Ki'i Ho'ona'auao posters.)

d. Read some excerpts of the article written by George Kanahele. The article describes the beautiful country of Waimea and sets the mood for this beautiful lifestyle.

e. Play some of the songs on the LP and ask the children to listen for information about Hawaiian ranching. Have them feel the music and then discuss their feelings and impressions.

f. Play "Paniolo Country" for them and have them look at the words on the song chart as it is being sung.

g. Have the children say the words in rhythm.

h. Play the record again and have the children sing along with the recording. Encourage them to move with their bodies and express their feelings using hand claps or feet tapping.

i. When the children have learned the song, have them suggest the 'ukulele key changes for the song. Place these on the song chart and have them practice playing the song on the 'ukulele.



## ART

3. The children will go to the pans containing a layer of limu floating on the surface of the water.

4. Have each child place a card under the limu and commence to shape the floating limu into a design on the card. When they are satisfied, have them lift the card carefully out of the pan so as not to disturb the design.

5. Have them place the completed designs on a stack of newspapers. When a layer of newspapers has about six cards, cover the cards with one of the 12" x 18" bed sheet sections, place another stack of newspapers on it (2-3" high) and lay another layer of cards.

6. When the entire class has completed a card, place some heavy books, bricks, or cement blocks on the stack and let it stand several days to dry.

7. Laminate the finished products and encourage the children to place them in a frame for their bedrooms.

X. Watercolor Painting: "Home on a Ranch"

Materials needed:

Paint brushes
Poster paper - 18" x 36"
Tins of watercolor



## GAMES AND RECREATION

what they learned on the field trip or through books. Encourage them to think of an outdoor game and then an indoor game.

2. An example of an outdoor game is:

   a. Lassoing

      1) Set up some JPO traffic cones five feet apart in a row.

      2) Divide the children into teams.

      3) Give each team a length of rope 15 feet long with a running noose on it.

      4) Have the children practice lassoing the cones, just as they see cowboys lassoing cattle.

      5) After several practice sessions, have a contest to see which team can have the most successes within a given time.

   b. Corn husking relay

      1) Ask each child to bring in one ear of corn or ask a farmer for a donation of fresh corn.

      2) Place the corn in 4-5 equal piles.

| SOCIAL STUDIES | SCIENCE/ENVIRONMENTAL EDUCATION | LANGUAGE ARTS |
|---|---|---|
| the children write a list of reasons why the ranching industry is important to their families. Compile these on a class retrieval chart. | Some suggested references are:<br><br>Epstein. Junior Science Book of Seashells.<br>Goudey, Alice. Houses from the Sea.<br>Padendorf. Pebbles and Shells.<br><br>For more activities, see Demanche. Hawai'i Nature Study Program, Reef and Shore, UH 1980.<br><br>G. Introduce the children to some of the understandings involved in the process of breeding cattle. See Appendix Unit II-V, pp. 169-174.<br><br>Teacher preparation:<br><br>Have available some pictures of pure bred dogs. Place these pictures on the bulletin board and number them. Make a worksheet so that the children will be able to write their guesses.<br><br>1. Allow the children to write the names of each of the dogs pictured on the bulletin board.<br><br>2. Check the answers as a group so they can learn as they check their answers.<br><br>3. Have the children circle the ones they have seen and put a star by the dog breed which they own.<br><br>4. Give each student a sheet of drawing paper and have them use their pentels or crayons. | |

## MUSIC

j. Add this song chart to the practice corner where the children can practice during quiet play time.

2. "Waiomina" (Wyoming)

Source:
The words of this song appear on the jacket of the LP record listed below.

Recording:
Drinking Champagne, LP, Hula Records, HS-542, Myra English.

Preparation:
Write the words and the interpretation on a wall chart. Have available a reference book telling about the great paniolo of Hawai'i, especially Ikuwā Purdy and Archie Ka'aua of Parker Ranch. Some resource books are:

Brennan. The Parker Ranch of Hawai'i.
Rizutto. The Pathfinders of Hawai'i.

Procedure:

a. Show the children pictures of Ikuwā and other paniolo. Read excerpts about the trip to Cheyenne, Wyoming where the World's Rodeo was held in 1908. These two cowboys won 1st and 3rd place.

b. Have the children read the translation of the verses. Ask them to pick out the place names in the verses and locate the places on the map of Hawai'i.



## ART

Procedure:

1. Have the children think about what they have seen, read and heard about life on a ranch.

2. Put on some paniolo music by the Sons of Hawai'i or Melvin Leed and have the children paint a picture of a ranch on which they'd like to live. Have them include the animals, the ranch house, the ranch hands and any other objects or people they may have seen on a ranch.

3. Remind them to fill up all the spaces and to use action in their figures.

4. After the paintings dry, encourage the children to share their paintings and tell a story of their lives on a ranch.

5. Mount these paintings in an all-school location like the school cafetorium.

Y. Drawing: "The New Breed"

Materials:

Drawing paper - 12" x 18"
Pentels
Pictures of a variety of cattle (see social studies plan, lesson G-5, p.124)

Procedure:

1. After listening to the reports about the various breeds of cattle in social studies, motivate the children to



## GAMES AND RECREATION

3) Divide the children into mini-'ohana and have them stand ten feet away from the piles of corn. Place a stool and a bucket next to each pile of corn.

4) On a signal, have the first husker run to the pile, pick up an ear of corn, sit on the stool and husk the ear of corn.

5) When the corn is completely husked, the player must put the corn in the bucket, run back to the team, and touch the next person in line who runs to do the same thing.

6) The first team to complete its pile of corn wins the husking bee.

7) Clean the husked ears of corn and ask the cafeteria manager to boil them for the children to eat.

3. Introduce the children to the dancing of the early western days. They have seen many westerns on television and have been exposed to ranch life so that they can appreciate the music of the west.

a. Find a resource person in your school or community who knows a square dance or a reel dance like the "Virginia Reel."

| SOCIAL STUDIES | SCIENCE/ENVIRONMENTAL EDUCATION | LANGUAGE ARTS |
|---|---|---|
| | a. Ask the children:<br>. What is a poi dog?<br>. How do we get a poi dog?<br>. Why do you suppose this name was given to this kind of dog?<br><br>b. Once the idea of breeding is mentioned, have the children discuss their concept of breeding.<br><br>c. Have them look up this word in the dictionary.<br><br>d. When they have established an understanding that breeding is done for the selection of the best characteristics of two animals for a special purpose, have them select two pure breed dogs and draw a picture of a "poi" dog that has the best characteristics of the two dogs selected. Encourage them to do research if necessary. Have them look at characteristics other than physical appearance.<br><br>E.g.<br>Keen sense of smell<br>Ability to learn obedience, etc.<br><br>e. Have them mount their finished pictures on one half of a 12" x 18" construction paper and write a brief description of their "poi" dog on the other half. Have them share their creations. | |

## MUSIC

c. Play the song for them as they follow the words on the song chart.

d. Ask them to say the words after you. When they have learned the words to verse one fairly well, go on to the second verse until they have learned all three verses.

3. "Hanohano Nā Cowboy" (The cowboys are glorious)

Source:
The words are written on the jacket of the record album listed below.

Recording:
Meet Palani Vaughn and the Sunday Mānoa, LP, Hula Records, HS-524.

This is an enjoyable tune to listen to. It describes the glorious cowboys of Waimea, especially John Kawānanakoa Lindsey of Parker Ranch. Teach the children the first, sixth, and last verses. Encourage the children to look for other songs that describe ranching in Hawai'i.



## ART

select two breeds of cattle that would probably produce the kind of cattle they would find ideal for their purposes.

2. Have them create this "new breed" using pentels. Ask them to think of a new name for their creation.

3. Encourage them to keep their drawings big and to use colors as close to the natural colors as possible.

4. Motivate them to write a creative story about their new animal.



## GAMES AND RECREATION

b. Check your school library record collection for early American dances and directions.

c. Talk to the 5th grade teachers in your school since they may be familiar with the dances.

d. See the TAC Video guide for videos or check the 16mm Film Catalogue for some films on dances of western America.

C. Plan a springtime "Rodeo in Hawai'i."

Have the children plan the kinds of paniolo outfits (palaka material, cowboy hats, lei wili, bandanas, etc.) they can wear; the kinds of foods they can prepare; the kinds of games they can play; the kinds of dances they can do and the songs they can sing. Try to get the parents involved in the planning and carrying out of this project.

| SOCIAL STUDIES | SCIENCE/ENVIRONMENTAL EDUCATION | LANGUAGE ARTS |
|---|---|---|
| | 5. Have available some pictures of different breeds of cattle. Refer to encyclopedias or books on cattle.<br><br>a. Ask the children to study the pictures of the different kinds of cattle and name the ones that they have seen in Hawai'i.<br><br>b. Have the children select a breed of cattle they would like to know about and have them do research in mini 'ohana. Have them find books, magazines, and pictures that they can use in their research.<br><br>c. Encourage them to write about those characteristics that make them the choice pick by cattle ranchers for:<br><br>1) milk<br>2) beef<br><br>d. Have them also read out the kinds of food the cattle eat and the care involved in raising them.<br><br>e. Encourage the children to talk to a rancher if one is available.<br><br>f. Read from Art Halloran's, The Hawaiian Longhorn Story. This brief book tells the story of the development of cattle ranching in Hawai'i.<br><br>g. Have the children share their research and pictures. | |

VIEWS OF HONOLULU

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VIEWS OF OLD HONOLULU

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Honolulu from Punchbowl in the 1890's.

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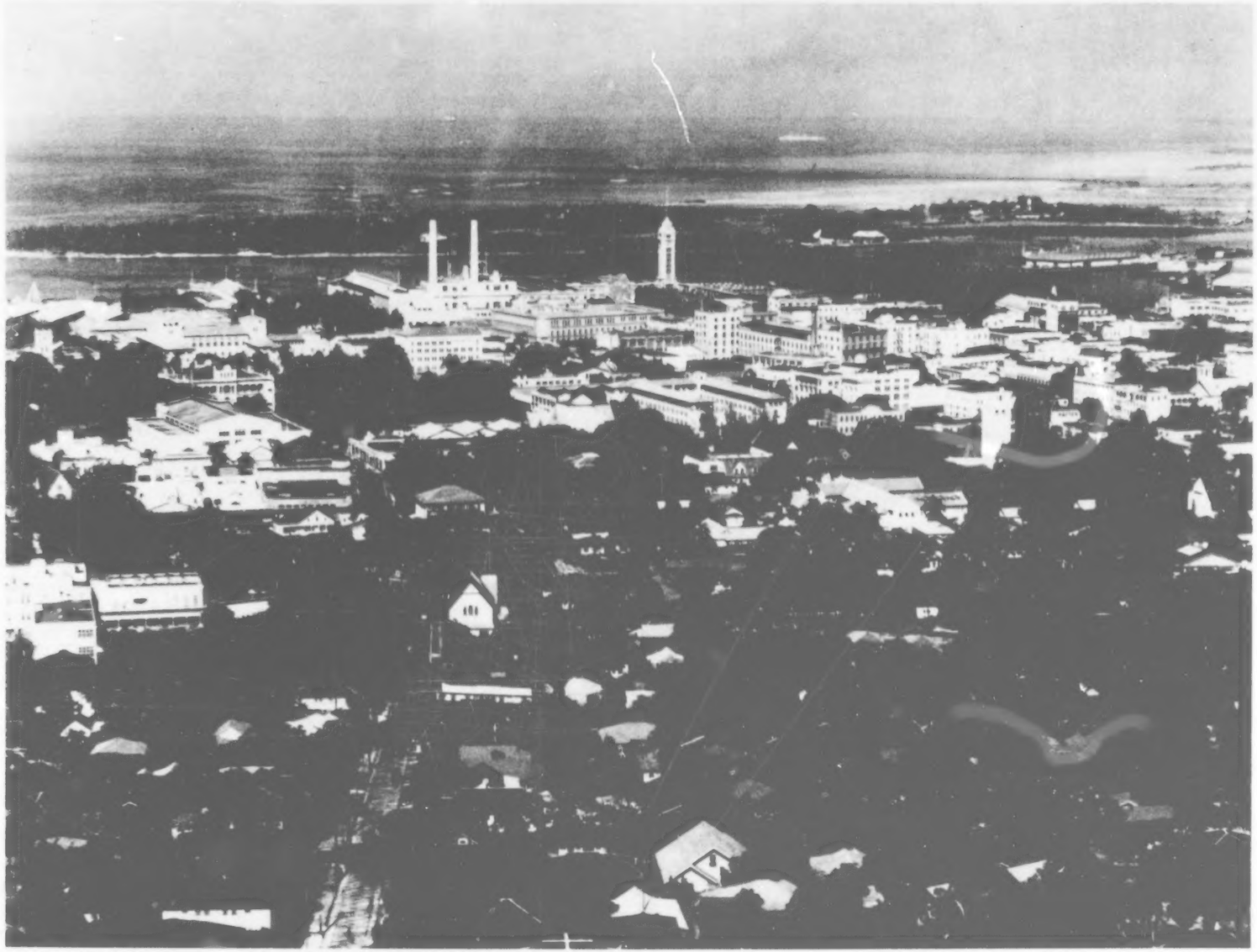
VIEWS OF OLD HONOLULU



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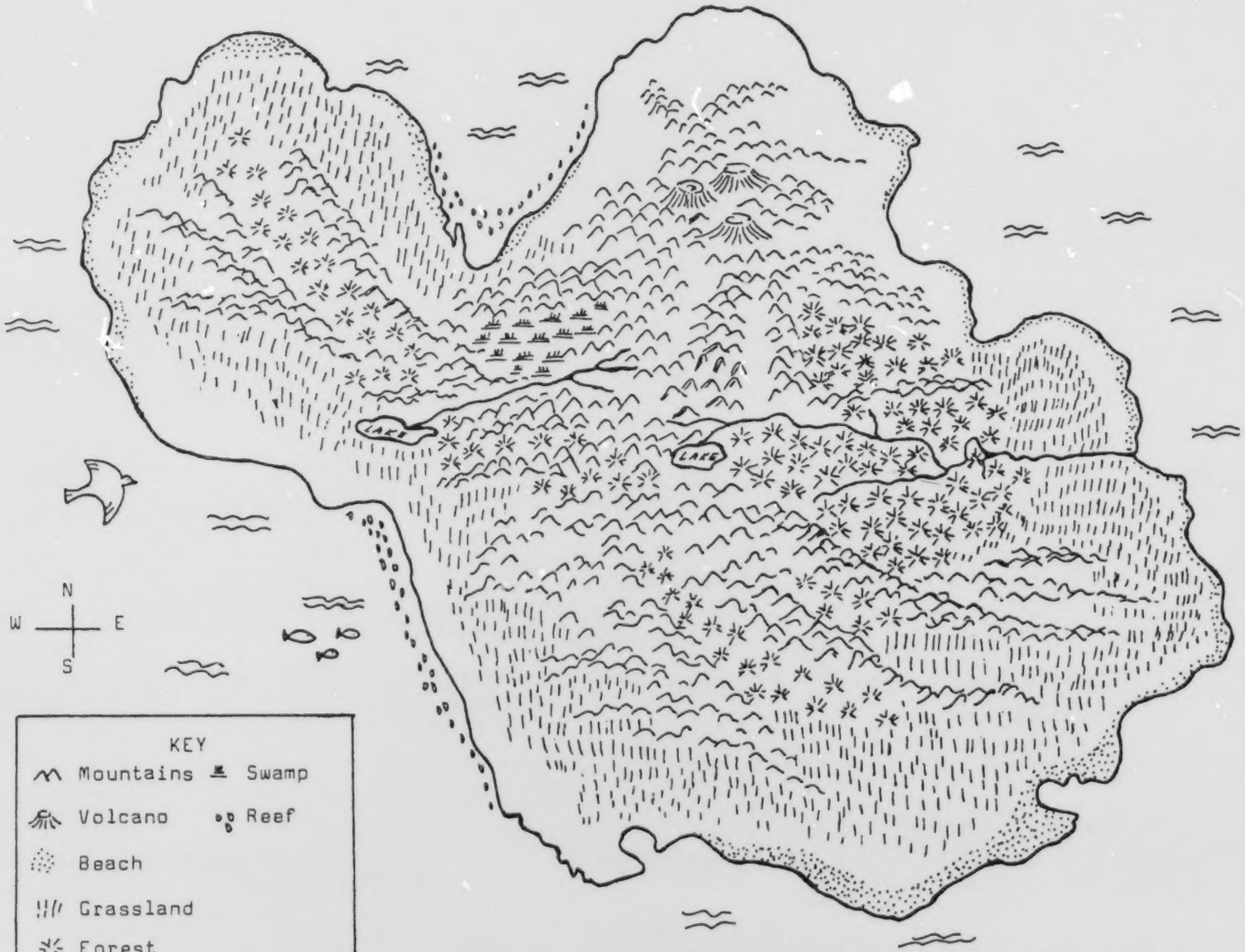
CITIES: SIMILARITIES AND DIFFERENCES

| Name of City | Land Size | Population | Leader | Industries | Businesses | Transportation | Natural Resources | Points of Interest |
|---|---|---|---|---|---|---|---|---|
| Eg. Honolulu | | | Mayor | Clothing | Banking | Cars, buses, intra-state airlines, inter-island ships, international airlines | Water, climate, beaches, ocean, seafood | Punchbowl, Diamond Head, Honolulu Harbor, Waikīkī, etc. |

# MAP OF AN ISLAND

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# VISITOR QUESTIONNAIRE

1. Are you a visitor? _____
2. Where is your home? _____
3. Why did you choose to come to Hawai'i? _____

   _____

   _____

   _____
4. What are you enjoying most about Hawai'i? _____

   _____

   _____
5. Is there anything that you don't like about Hawai'i?

   _____
6. Would you like to come back to Hawai'i for another visit?

   _____
7. Which islands did you visit or plan to visit?

   _____
8. Do you have any other comments about Hawai'i as a vacation land? _____

   _____

   _____

Interviewed by: _____

Location: _____

Date: _____

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LOVE A TREE

| | |
|---|---|
| Name of tree | Hawaiian:<br>Scientific:<br>Pet name: |
| Height of tree | |
| Location | |
| Condition | |
| Method of seed dispersal | |
| Flower description | |
| Description of its environment | (shade tree, full sun?) |
| Life in or on the tree | |
| Leaves | |
| Bark | |
| Importance | |

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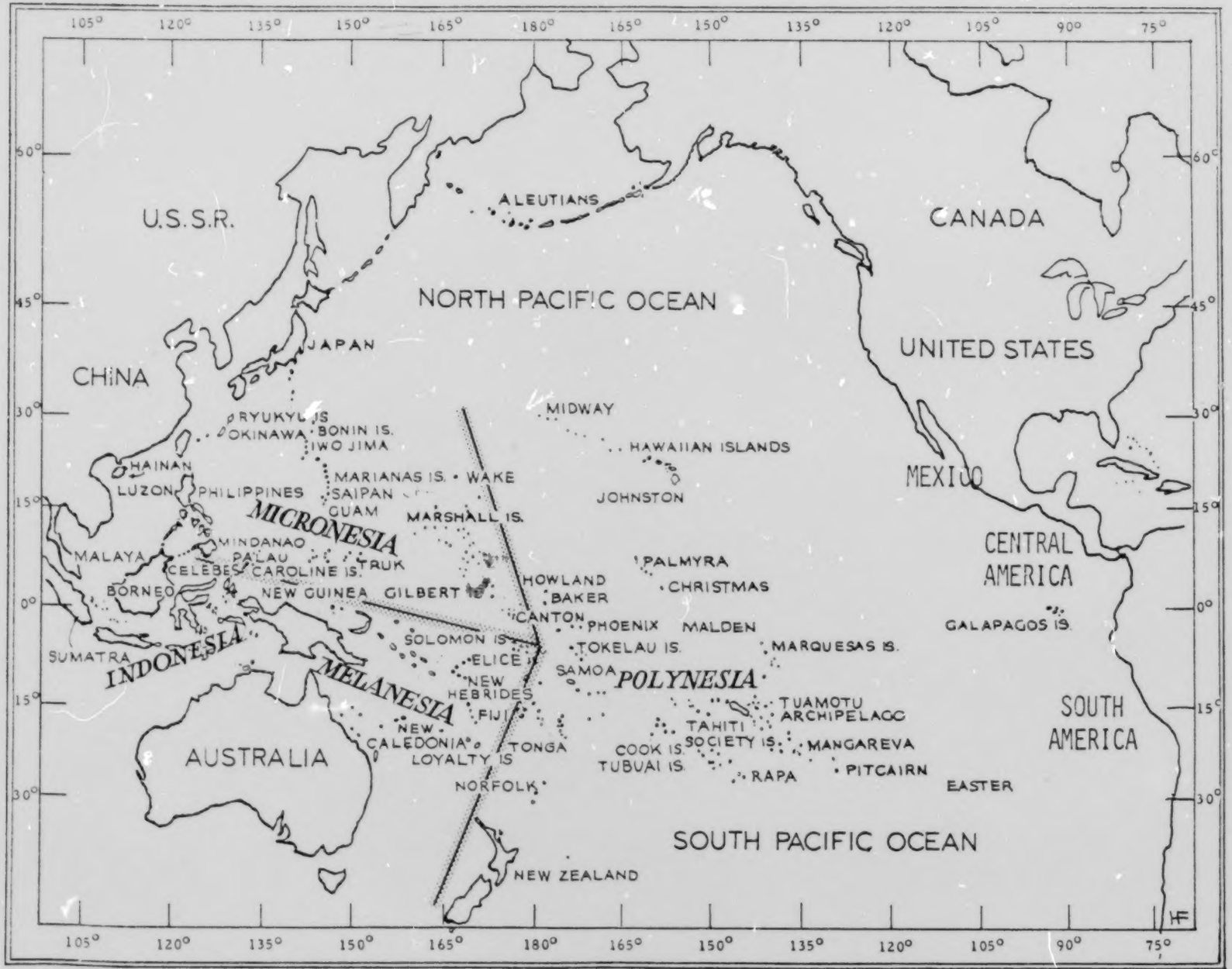
MAP OF THE PACIFIC BASIN COUNTRIES AND ISLANDS




OFFICE OF SOCIAL STUDIES · DEPARTMENT OF EDUCATION · STATE OF HAWAII

PLANNING SHEET FOR A TRIP TO HAWAI'I

| Point of departure | Destination | Mode of Transportation | People involved in providing services |
|---|---|---|---|
| Home/California Airport, etc. | Airport<br>Honolulu airport | Family car<br>Jet | Relatives<br>Porter, ticket clerk, baggage workers, stewards/stewardesses, cooks, pilot, co-pilot, navigator, ground crew, tower crew, etc. |

# Kukui

DYE OR STAIN

Green husk of fruit pounded with water for pale gray dye.
Soot from burned nuts for black dye for tatooing, for painting hulls of canoes, for kapa.
Inner bark pounded with water makes stain for fish nets and reddish-brown dye for kapa.
Dressing of oil from kernels applied as finishing process on surfboards.

MEDICINE

Sap from green fruit rubbed in child's mouth for thrush ('ea).
Sap put on skin wounds hastens healing. Mixture of flowers and sweet potatoes eaten for 'ea.
Leaves used as poultice for swellings and infections.

FOOD

Nuts roasted, shelled, and pounded to make relish called 'inamona. Raw kernels can make one ill.

LEI

Hard shells of nuts polished and strung into lei.

FISHING

Roasted kernels chewed by fishermen and then spat over the water to make it smooth and clear. Wooden floats for fish nets made of kukui wood if hau wood was not available.

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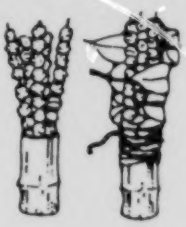
IHOIHO KUKUI

Candle formed by stringing roasted or dried kernels on short coconut midrib or splinter of bamboo and placed in sand in stone bowl. Each kernel burned 2 to 3 minutes.

ILLUMINATION

Kernels of nuts were important because of quality & quantity of oil.



LAMA KŪ

Large torch made of kernels strung on several midribs which were wrapped in dried ti leaves and placed at tips of bamboo handles.

POHO KUKUI

Stone lamp filled with kukui nut oil using twisted strip of tapa as wick.

LAMA

Small torch made by stuffing hollow of bamboo with roasted kernels.

Explorations/Ho'omāka'ika'i 1983, p. 113. Reprinted with permission of Kamehameha Schools/Bernice P. Bishop Estate.

# LAULIMA

WORKSHEET FOR DATA GATHERING

| | Papaya | Banana | Taro | Areca | Orchid |
|---|---|---|---|---|---|
| Size of farm | 4 acres | | | | |
| Natural Resources Needed | Good soil, sun, water | | | | |
| Reproduction | By seeds | | | | |
| Length of Growing Time | 9-10 months | | | | |
| Problems | • weeds, fungus and nematodes<br>• need to use herbicides and insecticides for extermination | | | | |
| Machinery, tools | Plow, ladder, spray, machines | | | | |
| Marketing Practices | Sold to supermarkets island-wide; sold in farmers' markets; exported | | | | |
| Yearly Profit | | | | | |

## Internal investigation on milk

August 12, 1982

# *Probe blames some health personnel*

By Barbara Hastings
and Jerry Burris
*Advertiser Staff Writers*

While the state Department of Health has been publicly defending how it dealt with the contamination of Oahu's milk by the pesticide heptachlor, an internal investigation has concluded that several department employees should be punished.

Results of the investigation, which was completed in May, were not made public. The probe was conducted by a six-member Department of Health team headed by deputy director Abelina Madrid Shaw.

There is no suggestion in the report of a deliberate cover-up or willful misconduct. Rather, it was a matter of the staff not doing a good job.

The report reprimands some department personnel and heavily criticizes lower-level employees in the food and drug and laboratory sections. Job sanctions, including suspensions without pay and at least one demotion, are recommended. Some management personnel are named for job actions as well.

Department spokesman Don Horio said there would be no official comment on the internal report. He said copies were turned over to the people named in it for their responses.

The report came to light yesterday at the same time health officials were preparing for a meeting this morning with representatives of two federal agencies. That meeting is to hash out whose milk tests are accurate and to discuss a federal plan to lower the allowed level of heptachlor.

The pesticide is believed to have gotten into the milk by way of chopped pineapple plants used as cattle feed. The Department of Health discovered the contamination in January and issued the first of a series of milk recalls in March.

The department has come under fire because of the delay in recalling the milk and because it declared milk safe several times, only to order it pulled from grocery shelves again.

Yesterday, state Sen. Ben Cayetano said the state should stop focusing on who's right about the amount of pesticide in the milk — and start getting some adequate medical advice out to the public.

Cayetano said he is concerned about the "attitude" of the Department of Health. He said the department hasn't been doing "everything it could to determine the length of exposure" of Oahu consumers to the pesticide.

He criticized department officials for waiting more than three months to test a sample that could have shed light on how long the milk had been contaminated.

The milk was found by a consumer cleaning out her freezer. Cayetano said she told his committee about it in late March or early April.

"The fact they (the Department of Health) didn't do it until July 23, the day the lieutenent governor decided to make this a campaign issue, bothers me. There's an inference made that if the issue had not been raised, they might never have tested this stuff," said Cayetano, who heads a Senate committee investigating the milk contamination.

Cayetano's committee will meet with the federal officials tomorrow.

Lt. Gov. Jean King, who is running against Gov. George Ariyoshi in the primary election, announced July 23 that a group of university scientists were concerned the milk had been contaminated at least since April 1981. Health officials have questioned that information, as well as test results by the federal Environmental Protection Agency which indicate high levels of the pesticide in last summer's milk.

When the Department of Health finally did test the milk found in the consumer's freezer, milk that was produced in July and August last year, its results showed heptachlor was not detectable — that is, under 0.05 parts per million. However, when the Environmental Protection Agency tested the same milk, it found levels of 0.15 and 0.16 ppm.

Another EPA test — on milk obtained last summer for radiation testing — found levels much, much higher. The state Department of Health questions the validity of those EPA samples and the testing methods.

Cayetano said that if there's a chance heptachlor was in the milk supply on Oahu a year ago, the state should be informing people what this could mean. EPA officials say one possible concern is subchronic liver damage — or liver enlargement.

Department of Health spokesman Horio said there really was no delay in testing that consumer's frozen milk, because "it was not and is still not regarded as an official sample."

Deputy health director Mel Koizumi knew about the frozen milk, Horio said, "and after things had more or less died down in terms of recall actions, implementing the milk action plan and coordinating various agencies' efforts . . . Koizumi could look at this."

He added that the data King released, which Horio called "conflicting information," and EPA's tests results added impetus to test the frozen milk.

Horio said the department cannot explain why its tests of the frozen milk found only a third as much pesticide as did tests conducted by the FDA.

An independent lab will be hired to do yet another test on that milk, Horio added.

And in another milk-related development, Independent Democrat Frank Fasi says the state should provide free testing for all pregnant women to detect the level of heptachlor in their systems.

Fasi, a gubernatorial candidate, said the testing would be done only on those who want it.

Fasi said a lot of women can't afford to have this testing done themselves. He said some may assume it is unsafe to nurse their babies and will put them on bottles.

"This is tragic, since many women prefer to nurse their babies," he said.

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## 1,000 lbs. confiscated, recalled

October 16, 1982

# *More watercress contaminated*

By Barbara Hastings
*Advertiser Science Writer*

More than 1,000 pounds of watercress have been confiscated or recalled by the state Department of Health because samples contained a pesticide almost 2½ times the acceptable level.

Yesterday the state confiscated 660 pounds of the watercress harvested Thursday by the Seijun Kobashigawa farm in Pearl City after laboratory analysis showed excessive levels of the pesticide endosulfan.

Another batch, about 400 pounds, which had been harvested earlier in the week by Kobashigawa, was recalled from supermarket shelves. Inspectors "have a strong suspicion it is contaminated because it is from the same field," said Don Horio, Health Department spokesman.

The product is marketed with the label "Pearl Harbor Springs Watercress" on the wrap tie, but other growers, who are not affected by the recall, also use that label.

Watercress was pulled from Star Supermarket shelves in Kahala Mall, Kamehameha Shopping Center, Moiliili and Pearl Ridge shopping centers. And watercress was recalled from retailers supplied by wholesalers Paradise Shippers and Oahu Farmers. These stores and eateries are Oahu Farmers outlet on Kapahulu Avenue, Kalihi Queen's Market, Kit's Market in Haleiwa, Haleiwa IGA Supermarket, Young's Chop Suey and Hung Nien Restaurant.

The Department of Health has urged consumers not to eat watercress if they bought it this week from those outlets. But state officials added that endosulfan deteriorates fairly rapidly "and is not stored, to any appreciable extent, in the body."

"In acute doses, it may cause hyper-excitability and convulsions," the department's statement said, but the levels found in this watercress "should not cause any alarm, based on laboratory experiments with animals."

This is the third time watercress has been found to contain high levels of pesticides. This summer the state found high levels of endosulfan and diazonon in watercress, but no recall or public announcement was made at the time because the Health Department determined that all of the watercress had been sold before the testing was completed.

Then, two weeks ago, another grower, Koizumi Farm, was found to have levels of endosulfan six times the acceptable level, and about 90 pounds were recalled from markets.

The high levels of endosulfan found in the Kobashigawa watercress have farmers and the state Department of Agriculture baffled and frustrated, according to Lyle Wong, pesticides chief.

He said there was no indication the pesticide was misused by the grower. If that's the case, the presence of the endosulfan in the watercress may mean the pesticide was built up in the vegetable — which it is not supposed to do.

Wong said agriculture officials would start treating a test plot Monday, sample it every day and see if the endosulfan accumulates.

Federal regulations governing endosulfan use (which the state of Hawaii follows) allow for repeat applications of endosulfan on watercress every seven to 10 days, but none can be applied for seven days before harvest.

Endosulfan is used to control the diamondback moth on watercress. The moth's larval or wormlike stage thrives on the watercress leaf, leaving holes and discolored blotches on it.

Wong said the Kobashigawa farm had applied the pesticide at the right rate and observed the seven-day layoff before harvesting, yet the test samples contained 4.98 parts per million of the endosulfan "when it should not have exceeded 2" parts per million.

The 2 parts per million level is the tolerance set by the federal government for residues of endosulfan on watercress and a host of other vegetables. If applied properly, the pesticide is not supposed to leave any more than 2 parts per million residue on the produce.

The watercress industry, already strapped, is taking this latest pesticide incident "pretty hard," Wong said. The diamondback moth population is increasing and sales are down.

Agriculture officials are studying another pesticide — mevinphos — in hopes that it can be cleared for emergency use on watercress to save the industry, but field trials on that don't start until next week. A wasp that thrives on the moth has been released in one area, but so far no significant reduction in the moth population has occurred.

More than the watercress industry could be affected if the investigation into endosulfan residues finds too much of the pesticide is being left on produce.

Endosulfan is registered for use on a wide variety of foods, and although watercress cannot be harvested until seven days after the last application, tomatoes, eggplants and peppers can be harvested a day after spraying. Cucumbers, squash and peas can be harvested the same day.

These other vegetables have not been tested for pesticide residues by the Health Department for at least a year, according to Maurice Tamura of the food and drug division. (The Agriculture Department regulates pesticide use on the plants, but the Health Department is in charge of monitoring residues on the end product.)

Tamura said the Health Department "is going to have to look into other crops soon," not just for endosulfan residues, "but pesticides in general — as soon as we get the watercress squared away."

Usually, vegetables are checked quarterly, health spokesman Horio said, but not every vegetable gets tests four times a year. The last time tomatoes were sampled for pesticides was in August 1980, and no pesticide residues were found, Horio said.

But no tests were conducted on vegetables this year, Tamura said, because the labs have been tied up with sampling and testing milk after unacceptable levels of the pesticide heptachlor were found in several Oahu dairy products.

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A-4 Honolulu Star-Bulletin Saturday, October 1, 1983

# EDB Ban Threatens Pine, Growers Warn

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By Jeanne Ambrose
*Star-Bulletin Writer*

If a suitable alternative to the pesticide ethylene dibromide (EDB) cannot be developed, the pineapple industry in Hawaii will feel "a multimillion-dollar impact," said the president of the Pineapple Growers Association of Hawaii yesterday.

After hearing of the Environmental Protection Agency's decision yesterday suspending the sale and distribution of EDB for soil fumigation, Dole Co. called "an immediate halt" to its use of the chemical, said Wes Smith, who heads the association and is vice president and general manager of Dole.

Under the EPA action, all EDB in storage by the industry may be used through Sept. 1, 1984, but, Smith said, Dole will not use what it has until the company reviews the matter and considers the alternatives.

On Oahu, Dole and Del Monte Corp. both use EDB as their primary method of controlling the reniform nematode, a worm that destroys the roots of the pineapple plant.

Now that EDB will not be available, the pineapple industry faces "a serious problem," said Lyle Wong, chief of the pesticides branch of the state Department of Agriculture.

The Pineapple Growers Association "will follow the appeals procedure established for EPA decision," Smith said, because that decision "is at variance with the evidence developed through extensive soil testing by the state Department of Agriculture."

EVIDENCE that the chemical is contaminating ground-water supplies in Hawaii, as well as in California, Florida and Georgia, led to the emergency suspension.

Four wells in Waipahu have been closed since the July discovery of small amounts of EDB in the water there. The EPA has said exposure to such amounts over a lifetime poses a slight increase in cancer risk.

The chemical has been shown in laboratory tests to produce cancer, reproductive disorders and mutations in test animals.

The Pineapple Growers Association's appeal will be based on the "fact" that the industry's use of EDB does not result in public exposure to the chemical, Smith said.

Although EDB was found in the Waipahu wells, "we do not believe we are the source of the ground-water contamination," Smith said.

Gov. George Ariyoshi, in a letter to the EPA earlier this month supporting EDB use in Hawaii, also pointed out that ground-water studies in Hawaii did not implicate agricultural use of EDB in the water contamination.

Yesterday, the governor said the EPA decision "may have a serious economic impact on some of Hawaii's agricultural products."

"While we had raised the question whether the use of this pesticide on pineapple was in fact the cause of the contamination in a few wells in Hawaii, we must now abide by the decision of the EPA," he said.

BECAUSE pineapple industry officials say alternatives to EDB are less efficient and more costly, the economic impact on the industry "is quite substantial," Smith said.

Although Del Monte spokesman Mark Gutsche said he is "not in a position to comment about the future," using alternatives to EDB could mean the company will have to raise its pineapple prices.

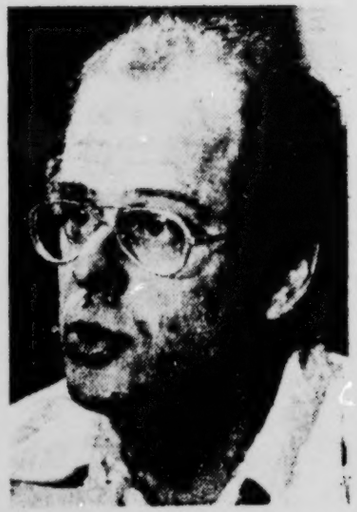
However, Del Monte plans to continue using its fields here for growing the fruit, he said yesterday in a telephone interview from his San Francisco office.

At the same time the EPA issued the suspension order, it announced plans to cancel and phase out all other major pesticide uses of the chemical, which includes its use as a fumigant on quarantined papaya.

The EDB cancellation and phaseout becomes effective Sept. 1, 1984.

Robert Souza, manager of the Papaya Administrative Committee, said the foremost problem facing that industry is finding an alternative to EDB in response to the ban.

For Hawaii papaya growers, the ban will have a major impact since a good percentage of Hawaii's papayas are shipped to markets in Japan and California, Souza said. Without protection against fruit flies, the papaya shipments to the markets would be blocked.



Wes Smith
*Looking for EDB alternatives*

SOUZA SAID the papaya committee will request an EPA hearing to "look over the situation" to find a substitute for EDB and to see if the use of the pesticide on papayas in Hawaii can be extended to September 1985.

The immediate ban applies to all sales and distribution of EDB as a soil fumigant for citrus and fruit trees, soybeans, pineapples, cotton, tobacco, peanuts and 30 other fruit and vegetable crops.

About 90 percent of the 20 million pounds of EDB used annually in U.S. agriculture is subject to the immediate ban, the EPA said.

The use of EDB as a gasoline additive will be allowed, however.

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The Honolulu Advertiser Saturday, March 31, 1984 B-3

# *Tests show grain products well within EDB guidelines*

The state Health Department has tested more rice, corn, grain and flour products and found all samples to be well below federally recommended levels for EDB contamination.

The latest tests were for:

● **Rice and corn products:** Hinode California extra-fancy calrose rice; Kokeshi AA premium calrose rice; Hinode California extra-fancy brown rice; Jolly Time white hull-less popcorn; Jiffy Pop butter-flavor and natural-flavor popcorn; Orville Redenbacher's gourmet popping corn; Cracker Jack extra-fresh popping corn; Arrowhead Mills popcorn.

● **Grain and grain products:** Fearn Naturfresh raw wheat germ; Ener-G pure rice bran; K&L brand natural foods hi-protein cereal; Lassen's original frunola with mixed fruit and nuts; Stone-Buhr 4-grain cereal mates; Stone-Buhr long-grain brown rice; El Molino gluten flour.

● **Flour and flour mixes:** Nabisco Dromedary pound cake mix, corn bread mix and corn muffin mix; Betty Crocker supermoist apple cinnamon cake mix and chocolate chip cake mix; Gold Medal Wondra Pour 'n Shake quick-mixing enriched flour; Betty Crocker buttermilk pancake mix; Aunt Jemima Easy-Mix corn bread; Duncan Hines yellow cake mix, bran muffin mix, banana nut muffin mix, deluxe orange supreme cake mix and deluxe carrot cake mix; HFM Enriched Brominated Thin & Crispie Bleached Pizza Flour.

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Table 490.-- AGRICULTURAL SUMMARY: 1964 TO 1978

| Subject | 1964 | 1969 | 1974 | 1978 |
|---|---|---|---|---|
| Number of farms by size | | | | |
| Total | 4,864 | 3,896 | 3,020 | 4,310 |
| Less than 10 acres | 2,603 | 2,024 | 1,633 | 2,527 |
| 10 to 49 acres | 1,594 | 1,281 | 872 | 1,211 |
| 50 to 179 acres | 359 | 336 | 271 | 296 |
| 180 to 499 acres | 168 | 140 | 127 | 146 |
| 500 to 999 acres | 38 | 28 | 23 | 24 |
| 1,000 to 1,999 acres | 22 | 17 | 24 | 32 |
| 2,000 or more acres | 80 | 70 | 70 | 74 |
| Farm acreage | | | | |
| Total acreage (1,000) | 2,354 | 2,058 | 2,119 | 1,988 |
| Per farm (acres) | 484 | 528 | 702 | 461 |
| Total cropland (1,000) | 370.9 | 379.8 | 351.6 | 333.3 |
| Harvested cropland (1,000) | 167.5 | 178.7 | 151.4 | 158.6 |
| Irrigated land (1,000) | 143.9 | 145.6 | 141.7 | 159.3 |
| Other characteristics | | | | |
| Average age of farm operators (years) | 51.0 | 53.1 | 55.4 | 52.7 |
| Tenant operators (percent of total) | 41.1 | 38.1 | 36.6 | 34.5 |
| Regular hired workers 1/ | 12,375 | 13,200 | 11,497 | 11,380 |
| Average value of land and buildings: | | | | |
| Per farm ($1,000) | 98.9 | 156.8 | 340.6 | 413.9 |
| Per acre (dollars) | 205 | 297 | 485 | 897 |
| Market value of agricultural products sold: | | | | |
| Total ($1,000,000) | 187.5 | 285.6 | 609.8 | 419.3 |
| Per farm ($1,000) | 38.5 | 73.3 | 201.9 | 97.3 |
| Percent of farms over $2,500 | 46.5 | 55.6 | 67.4 | 67.6 |

1/ Working 150 days or more on all farms.
2/ 1978 data exclude sales of forest products.
Source: U.S. Bureau of the Census, 1974 Census of Agriculture, Vol. I, Part 11 (1977), pp. 1, 2, and 16, and 1978 Census of Agriculture, Vol. I, Part 11 (1981), pp. 1, 2, 5, and 6.

Table 494.-- ACREAGE IN CROP, NUMBER OF CROP FARMS, VOLUME OF CROP MARKETINGS, AND VALUE OF CROP SALES: 1972 TO 1982

| Subject | 1972 | 1981 | 1982 |
|---|---|---|---|
| Acreage in crop (1,000 acres): | | | |
| Sugarcane | 229.6 | 216.1 | 204.8 |
| Pineapples (land used for pineapple) | 58.1 | 41.0 | 36.0 |
| Vegetables and melons (harvested acreage) | 3.0 | 4.2 | 4.1 |
| Fruits, excluding pineapples | 3.6 | 5.4 | 5.6 |
| Coffee | 2.9 | 1.8 | 2.0 |
| Macadamia nuts | 9.3 | 13.8 | 14.7 |
| Miscellaneous crops | 3.2 | 8.0 | 11.3 |
| Number of crop farms: | | | |
| Sugar | 577 | 360 | 285 |
| Pineapples | 36 | 18 | 18 |
| Vegetables and melons | 412 | 583 | 620 |
| Fruits (excluding pineapples) | 417 | 657 | 700 |
| Coffee | 770 | 625 | 620 |
| Macadamia nuts | 326 | 490 | 520 |
| Taro | 123 | 123 | 117 |
| Flowers and nursery products | 446 | 680 | 650 |
| Volume of crop marketings: | | | |
| Sugar, unprocessed cane (1,000 tons) | 9,929 | 8,831 | 8,808 |
| Pineapples, fresh equivalent (1,000 tons) | 947 | 636 | 670 |
| Vegetables and melons (1,000 lb.) | 50,903 | 73,330 | 72,740 |
| Fruits, excluding pineapples (1,000 lb.) | 38,119 | 83,010 | 70,810 |
| Coffee, parchment (1,000 lb.) | 3,640 | 2,210 | 1,050 |
| Macadamia nuts, in shell (1,000 lb.) | 13,110 | 33,360 | 36,720 |
| Taro (1,000 lb.) | 9,020 | 6,100 | 6,460 |
| Value of crop sales ($1,000): | | | |
| Sugar (unprocessed cane) | 117,300 | 207,500 | 230,800 |
| Pineapples (fresh equivalent) | 43,900 | 89,745 | 99,484 |
| Vegetables and melons | 7,688 | 21,669 | 23,016 |
| Fruits (excluding pineapples) | 4,687 | 15,516 | 14,846 |
| Coffee (parchment) | 1,835 | 4,420 | 2,205 |
| Macadamia nuts (in shell) | 3,055 | 26,454 | 27,136 |
| Taro | 758 | 1,305 | 1,447 |
| Field crops (not estimated separately) | 1,608 | 5,107 | 4,651 |
| Flowers and nursery products | 5,244 | 29,482 | 30,559 |

Source: Hawaii Agricultural Reporting Service, Statistics of Hawaiian Agriculture (annual).

Table 501.-- FLOWERS AND NURSERY PRODUCTS, 1980 TO 1982, AND BY ISLANDS, 1982

| Island and year | Number of farms | Area | | | | | Wholesale value ($1,000) |
|---|---|---|---|---|---|---|---|
| | | Total (acres) | Greenhouse (1,000 sq. ft.) | Artificial shade structure (1,000 sq. ft.) | Natural shade area (acres) | Open field (acres) | |
| State total: | | | | | | | |
| 1980 ..... | 640 | 1,477 | 1,753 | 19,567 | 130 | 858 | 27,688 |
| 1981 ..... | 680 | 1,610 | 2,295 | 23,068 | 133 | 895 | 29,482 |
| 1982 ..... | 650 | 1,628 | 2,399 | 25,126 | 119 | 877 | 30,559 |
| Islands, 1982: | | | | | | | |
| Hawaii ... | 310 | 912 | 1,270 | 19,425 | 104 | 333 | 13,559 |
| Kauai .... | 25 | 46 | 20 | 182 | 3 | 38 | 299 |
| Maui ..... | 80 | 262 | 191 | 648 | - | 243 | 3,925 |
| Oahu ..... | 235 | 408 | 918 | 4,871 | 12 | 263 | 12,776 |

Source: Hawaii Agricultural Reporting Service, "Flower and Nursery Products Number One Diversified Industry After Record Year," Hawaii Flowers and Nursery Products, Annual Summary (July 7, 1983).

Table 502.-- FLOWERS AND NURSERY PRODUCTS, BY KIND OF FLOWER: 1982

[Shown for commodities with value of sales over $500,000.]

| Kind of flower | Number of farms | Number of flowers sold | | Value of sales ($1,000) |
|---|---|---|---|---|
| | | Unit | Number | |
| Cut flowers: | | | | |
| Anthuriums ..... | 225 | 1,000 dozens | 1,984 | 5,633 |
| Roses ..... | 6 | 1,000 dozens | 478 | 1,381 |
| Chrysanthemums, pompon ..... | 17 | 1,000 bunches | 439 | 546 |
| Lei flowers: | | | | |
| Carnations ..... | 29 | Million flowers | 33.7 | 1,206 |
| Vanda, Miss Joaquim ..... | 31 | Million flowers | 79.7 | 1,185 |
| Potted plants: | | | | |
| Chrysanthemums ..... | 11 | 1,000 pots | 214 | 681 |
| Dendrobium orchids ..... | 91 | 1,000 pots | 183 | 767 |
| Other orchids ..... | 66 | 1,000 pots | 312 | 1,415 |
| Potted foliage ..... | 90 | ... | (NA) | 8,820 |
| Unfinished flower and foliage stock .. | 42 | ... | (NA) | 1,355 |

NA Not available.

Source: Hawaii Agricultural Reporting Service, "Flowers and Nursery Products Number One Diversified Industry After Record Year," Hawaii Flowers and Nursery Products, Annual Summary (July 7, 1983).

Table 50/.-- FRESHWATER PRAWN FARMS, BY TYPE OF OPERATION AND ISLAND: DECEMBER 31, 1979 TO 1982

| Operation and island | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|
| All prawn farms ..... | 19 | 24 | 21 | 22 |
| Type of operation: | | | | |
| Full-time ..... | 7 | 8 | 8 | 8 |
| Part-time ..... | 12 | 16 | 13 | 14 |
| Island: | | | | |
| Hawaii ..... | - | 4 | 4 | 4 |
| Molokai ..... | 1 | 1 | 1 | 1 |
| Oahu ..... | 17 | 16 | 13 | 13 |
| Kauai ..... | 1 | 3 | 3 | 4 |

Source follows next table.

Table 508.-- FRESHWATER PRAWN ACREAGE, PRODUCTION, AND VALUE: 1972 TO 1982

| Year | Acres of prawn ponds 1/ | Production (1,000 lb.) | Value ($1,000) | Wholesale price per pound (dollars) |
|---|---|---|---|---|
| 1972 ..... | 1.5 | 4.3 | 15.0 | 3.50 |
| 1973 ..... | 1.5 | 4.4 | 15.3 | 3.50 |
| 1974 ..... | 5 | 11.0 | 38.5 | 3.50 |
| 1975 ..... | 26 | 40.3 | 140.9 | 3.50 |
| 1976 ..... | 26 | 43.3 | 151.6 | 3.50 |
| 1977 ..... | 33 | 54.9 | 206.0 | 3.75 |
| 1978 ..... | 107 | 110.2 | 420.0 | 3.82 |
| 1979 ..... | 275 | 205.0 | 787.3 | 3.84 |
| 1980 ..... | 310 | 300.0 | 1,125.0 | 3.75 |
| 1981 ..... | 260 | 240.0 | 1,031.0 | 4.30 |
| 1982 ..... | 306 | 316.6 | 1,553.0 | 4.90 |

1/ As of December 31.
Source: Hawaii State Department of Land and Natural Resources, Aquaculture Development Program, records.

Table 509.-- AQUACULTURE ACREAGE, PRODUCTION, AND VALUE, BY TYPE: 1976 TO 1982

| Subject and year | All types | Freshwater prawns | Hawaiian fishponds | Postlarvae 1/ | Other species 2/ |
|---|---|---|---|---|---|
| Acreage: | | | | | |
| 1976 | 235 | 26 | 192 | | 17 |
| 1977 | 246 | 33 | 192 | | 31 |
| 1978 | 320 | 107 | 192 | | 31 |
| 1979 | 493 | 275 | 192 | 1 | 25 |
| 1980 | 575 | 310 | 205 | 2 | 58 |
| 1981 | 547 | 260 | 199 | 2 | 86 |
| 1982 | 643 | 306 | 242 | 2 | 93 |
| Production (1,000 lbs.): 3/ | | | | | |
| 1976 | 94.0 | 43.3 | 19.7 | ... | 31.0 |
| 1977 | 122.6 | 54.9 | 20.1 | ... | 47.6 |
| 1978 | 178.5 | 110.2 | 23.3 | ... | 45.0 |
| 1979 | 246.4 | 205.0 | 20.0 | ... | 16.4 |
| 1980 | 320.0 | 300.0 | 20.0 | ... | 31.0 |
| 1981 | 338.5 | 240.0 | 23.1 | ... | 75.4 |
| 1982 | 551.2 | 316.6 | 33.8 | ... | 200.8 |
| Value ($1,000): | | | | | |
| 1976 | 210.0 | 151.6 | 18.5 | | 39.9 |
| 1977 | 280.6 | 206.0 | 24.7 | | 49.9 |
| 1978 | 524.7 | 420.0 | 32.7 | | 72.0 |
| 1979 4/ | 1,531.3 | 787.3 | 22.0 | 500.0 | 222.0 |
| 1980 | 1,655.0 | 1,125.0 | 20.0 | 450.0 | 60.0 |
| 1981 | 1,868.5 | 1,031.0 | 23.0 | 610.0 | 204.5 |
| 1982 | 2,624.9 | 1,553.0 | 74.8 | 162.0 | 835.1 |

1/ Juvenile freshwater prawns and marine shrimp.
2/ Oysters, brine shrimp, carp and Chinese catfish, catfish, koi, tilapia, tropical fish and aquarium plants, and trout.
3/ Excludes items not sold by weight: post-larvae, brine shrimp, koi, tropical fish, and aquarium plants. Post-larvae individuals produced in 1982 numbered 14 million.
4/ Value of post-larvae estimated.
Source: Hawaii State Department of Land and Natural Resources, Aquaculture Development Program, information submitted July 16, 1982 and September 30, 1983.

Table 499.-- NUMBER OF LIVESTOCK OPERATIONS, VOLUME OF LIVESTOCK MARKETINGS, AND VALUE OF LIVESTOCK SALES: 1972 TO 1982

| Subject | 1972 | 1981 | 1982 |
|---|---|---|---|
| Number of livestock operations, Dec. 31: | | | |
| Cattle 1/ | 970 | 750 | 750 |
| Hogs | 540 | 650 | 650 |
| Milk | 100 | 70 | 70 |
| Eggs | 90 | 55 | 55 |
| Broilers | 16 | 10 | 10 |
| Honey | 20 | 28 | 28 |
| Volume of livestock marketings: | | | |
| Beef (dressed weight; 1,000 lb.) 2/ | 32,183 | 28,666 | 29,048 |
| Pork (dressed weight; 1,000 lb.) | 8,357 | 8,708 | 8,557 |
| Milk (million lb.) | 134.6 | 147.9 | 106.4 |
| Eggs (million) | 204 | 221.3 | 202.2 |
| Broilers and chickens (1,000 lb.) 3/ | 6,359 | 9,046 | 8,571 |
| Honey (1,000 lb.) | 300 | 875 | 840 |
| Value of livestock sales ($1,000): | | | |
| Cattle 4/ | 16,557 | 28,405 | 27,619 |
| Hogs 4/ | 4,524 | 8,382 | 8,465 |
| Milk | 14,494 | 30,320 | 21,908 |
| Eggs | 7,990 | 15,159 | 14,542 |
| Broilers and chickens | 2,540 | 5,307 | 5,240 |
| Other | 137 | 581 | 574 |

1/ Includes beef, dairy, and dairy replacement farms.
2/ Includes slaughter cattle, but excludes calves shipped out-of-State.
3/ Ready-to-cook weight.
4/ Excludes interfarm sales; includes out-of-State sales of slaughter cattle and feeder calves.

Source: Hawaii Agricultural Reporting System, Statistics of Hawaiian Agriculture (annual).

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1100-1, "Diversified Agriculture"
1060-2, "Farming in Kula"
R040-2, "Food and Fuel: What Animals Eat"
R041-2, "Food and Fuel: Growing and Processing"
1080-2, "Growing Concerns"
0186-1, "Moloka'i Potato Farm"
1350-1, "Profile of Hawai'i's Diversified Agricultural Industry"

SOME FISHING AREAS IN THE ISLANDS

Hawai'i

Kailua, Kona
Kalae (South Point)
Miloli'i

Kaua'i

Hanalei
Nāwiliwili

Lāna'i

Kaumalapa'u
Mānele

Maui

Hāna
Lāhaina
Ma'alaea

Moloka'i

Hālawa
Kaunakakai

O'ahu

He'eia Kea
Hālona
Honolulu Harbor
Ka'a'awa
Maunalua Bay
Pōkā'ī Bay

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## QUESTIONS ABOUT FISHING

1. Are you a full time fisherperson?
2. Why did you become a fisherperson?
3. What kinds of fish do you catch ?
4. What do you use to catch your fish ?
5. What kind of boat do you use?
6. Where do you go to catch your fish?
7. How much fish do you usually catch when you go on a trip ?
8. How long do you stay out on the ocean?
9. How many people fish with you?
10. What is the cost of going on a fishing trip?
11. Do you know of any rules or kapu people should remember about fishing?
12. What do you do with the fish you catch ?
13. Do you earn any extra money from fishing or is fishing just a fun hobby?
14. When you retire, will you become a full-time fisherperson?

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## FISHING

Fishermen followed the advice of *kahuna*, some of whom were specialists in the biology of sealife. Selected areas and species were protected seasonally and violation of *kapu* could result in execution. Conservation and resource management were literally matters of life and death.

The most highly developed techniques were practiced by men who held an esteemed position in Hawaiian society as a result of this activity. Women gathered marine life only in nearshore areas.

Fishing was a highly developed technology in Hawai'i, and it provided most of the protein for the Islands' people. Fish and invertebrates were collected using a variety of methods, including nets, hooks, plant poison, spears, and traps. The fabrication of fishing gear involved sophisticated and elaborate skills.

**"Maniere de punir de mort un coupaele aux iles Sandwhich,"** Jacques Arago 1981

## WOMEN'S ROLE

Fishing was highly structured in Hawaiian society. Women were prohibited from many areas and activities, and many kinds of fish were also forbidden to them. Women were restricted to the nearshore: to reef flats, beaches, tidepools, and mouths of streams.

They were adept at netting, snaring, hand capturing, and gathering of seaweed, but were considered to jeopardize open sea fishing. If a departing fisherman encountered a woman while on his way to the fishing grounds he would abruptly cancel his trip.

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# PRESERVING AN ERA AT WAIKI'I RANCH

By Jerry Tune

THE 2,949-acre Waikii Ranch, with elevations ranging from 3,900 to 5,000 feet above sea level, has always been one of those special places for people who treasure Old Hawaii. This part of the Parker Ranch is situated on the western slope of Mauna Kea in the midst of rolling hills.

The land is so high there is a cool, seasonal climate, but the breezes are mild compared with lower elevations. It is this land — once a lush rain forest before the introduction of cattle — that developer Jerry Kremkow wants to see preserved as a community of ranches.

Kremkow has the blessing of the Big Island County Council and Planning Commission to make Waikii Ranch available to 200 owners — sold in 10-acre, 20-acre and 40-acre parcels. Prices will be $285,000, $385,000 and $485,000, respectively.

There will be restrictive covenants to maintain the ranching feeling. No subdivision of the parcels will be allowed without approval of 90 percent of the owners. Homes on land must be built within an area staked out by Kremkow. Fences will be traditional kiawe wood fences. Traditional, old ranch-style architecture will be encouraged.

BUYERS WILL BE ALLOWED to build a certain amount of support facilities and to plant orchards on their property, but Kremkow notes that 80 percent of the ranch will be in open pasture lands.

There also will be a 600-acre common area for livestock of all kinds (Kremkow expects perhaps as many as 1,500 head of cattle on the ranch) and 100 acres of common facilities such as a clubhouse, livestock exposition area, polo grounds and baseball diamond.

Events to be held in the ranching community will include rodeos, horse shows, cattle sales, polo matches and equestrian events.

An Easter Sunday "family event" will be held April 22 with a sunrise service, egg hunt, picnic lunch, hot-air ballooning, exhibition polo and other events. Dodie MacArthur and Barbara Bryan are organizing the event for Kremkow.

"We are providing a standardized agricultural lifestyle and preserving an aesthetic way of life that is quickly dying out worldwide," says Kremkow, who notes how other rural upcountry areas have been too fragmented to guarantee quality control.

WAIKII IS CONSIDERED a "natural beauty site" on the Big Island. That is one reason why county approval was given for the plan.

As Kremkow puts it, "Without controls there would be a good chance that this beautiful land someday could be covered with shade houses and greenhouses."

Kremkow, who came to Hawaii in 1965 from Michigan, has become directly involved in bringing a new life to the area. An architect and engineer by training, Kremkow has ridden horseback over all of the ranch lands. He negotiated an option agreement to buy the land from Signal Properties in October 1982. Signal was selling to consolidate its landholdings in California.

Kremkow, well known as the designer and developer of Pioneer Plaza and the Plaza Club in Honolulu, had a theory on how the water formed under the blanket of fine volcanic material known as Pahala ash, which covers all the lands. Beneath the ash, the Hamakua volcanic series of Mauna Kea extends to an unknown depth. This formation consists of thin layers, mostly less than 10 feet thick, of primitive olivine basalt lavas that are characteristic of most permeable aquifers in Hawaii.

The conventional word on water is that it stayed on the side of the mountain where the rain falls. Kremkow believed that it was soaked up somewhat like a sponge and then flowed out in different directions.

Kremkow tested his view, walked out to a site on Waikii Ranch and said: "Dig, it here." After investing $2.5 million, the drilling went more than 4,300 feet. According to Water Resources International, which did the drilling, "all available information indicates that the Waikii Well is the deepest high-capacity water well in Hawaii and in the world," as reported in the Waikii Ranch Water Source report prepared by Barrett, Harris & Associates Inc. in association with John F. Mink.

A STABLE WATER SOURCE exists at an elevation of 1,500 feet and the well is capable of pumping up to 3 million gallons a day using present technologies, according to the report.

Kremkow says the entire northwest region of the Big Island consumes only 4.8 million gallons a day for agriculture, residential and tourist uses.

The well was designed and developed in October and November 1982, and then the option agreement with Signal was executed and closed in January 1983.

Kremkow Properties Inc. then had a venture partner, a subsidiary of Honolulu Federal Savings & Loan, pursue the ranch development.

*Jerry Kremkow*

For two years before this development, Kremkow was president of E.F. Hutton Development Corp. based in Los Angeles and New York. Now, as an independent developer, Kremkow is moving to his first love — a life on the ranch where he can breed cattle and, at the same time, preserve the open range lands.

After 18 months of exposure in hearings, Kremkow now awaits the final work on legal documents before sales can begin.

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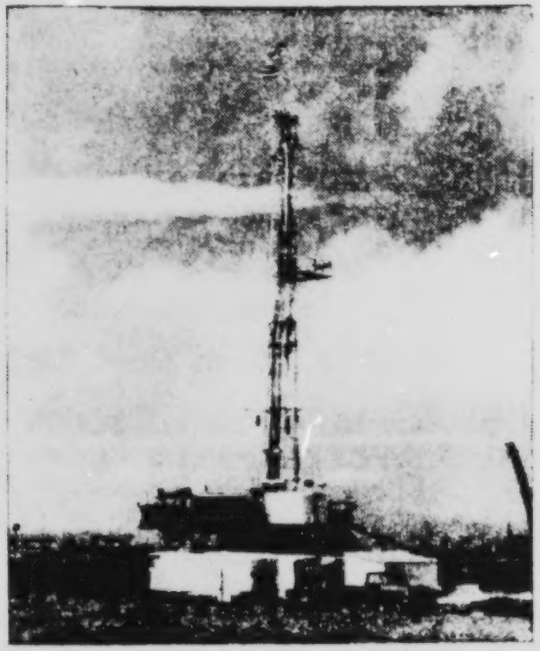

*The hillside and pastoral scenes at Waikii Ranch. At right, the well being drilled at Waikii.*

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# Water and History at Waikii

The Waikii Ranch has a history of being someplace special. Legends abound about the region. Appraiser Tom Holliday, who did the land appraisals and then researched the history, said that strictly translated, Waikii means "Water (wai) stone image (kii). But to Hawaiians, it means "fetched water," in recognition of a legend associated with the property.

Water has always been a major part of the Waikii history. "Ancient legends tell of it, the Parker Ranch fought over it, a village evaporated without it, and a new water source may bring the community to life again," writes Holliday.

Alfred Wellington Carter, prominent Honolulu attorney and Bishop Estate Trustee, brought water to the area after becoming guardian of Annie Thelma K. Parker, heir to one-half interest in the ranch.

After establishing long-term goals of water resource and cattle production development, Carter was determined to reinvest the ranch profits into extensive range improvements. This opinion apparently was not shared by Samuel Parker, who owned the other half of the ranch interests, according to historical references.

AN ARGUMENT regarding the Waikii paddock was the first major confrontation between the two men. Carter wanted a 14-mile pipeline from near Waimea upslope to Wakii, an area he considered to have much potential. Parker, convinced the effects of friction and gravity would render such a line useless, refused to grant his consent for the project. Undaunted, Carter pressed the issue. And, in consideration for a loan, the project went ahead.

The Waikii pipeline started Jan. 30, 1902 and was completed April 7, 1902. When water was turned on in the two-inch pipeline it flowed at a rate of 15,840 gallons in 24 hours, according to Carter's secretary Lucille Brundage.

The first residents of Waikii Village arrived in 1910 and included many from Russia. The population at Waikii Village peaked during the 1920s at between 90 and 100, according to one-time residents of the community. However, by this time, many of the Russian farmers had moved away and had been replaced with Hawaiian, Okinawan and Korean families.

During the World War I years, large amounts of wheat were grown, some for shipment to California. Waikii earned the moniker, "The Breadbasket of the Pacific." Later corn became the choice feed crop.

The village declined in the late 1940s and 1950s and many of the residences and structures were demolished or moved away. Today, only one residence, a grain silo and several Russian-made brick ovens remain.

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PLANT USAGE WORKSHEET

Plant: Breadfruit

Hawaiian Name: 'Ulu

Scientific Name: Artocarpus communis

Habitat: Hot, moist places

Description: This tree grows to be 30' - 60' tall. The leaves are very large and are about one to three feet long.

Flower:

Fruit:

How to grow it:

When to harvest:

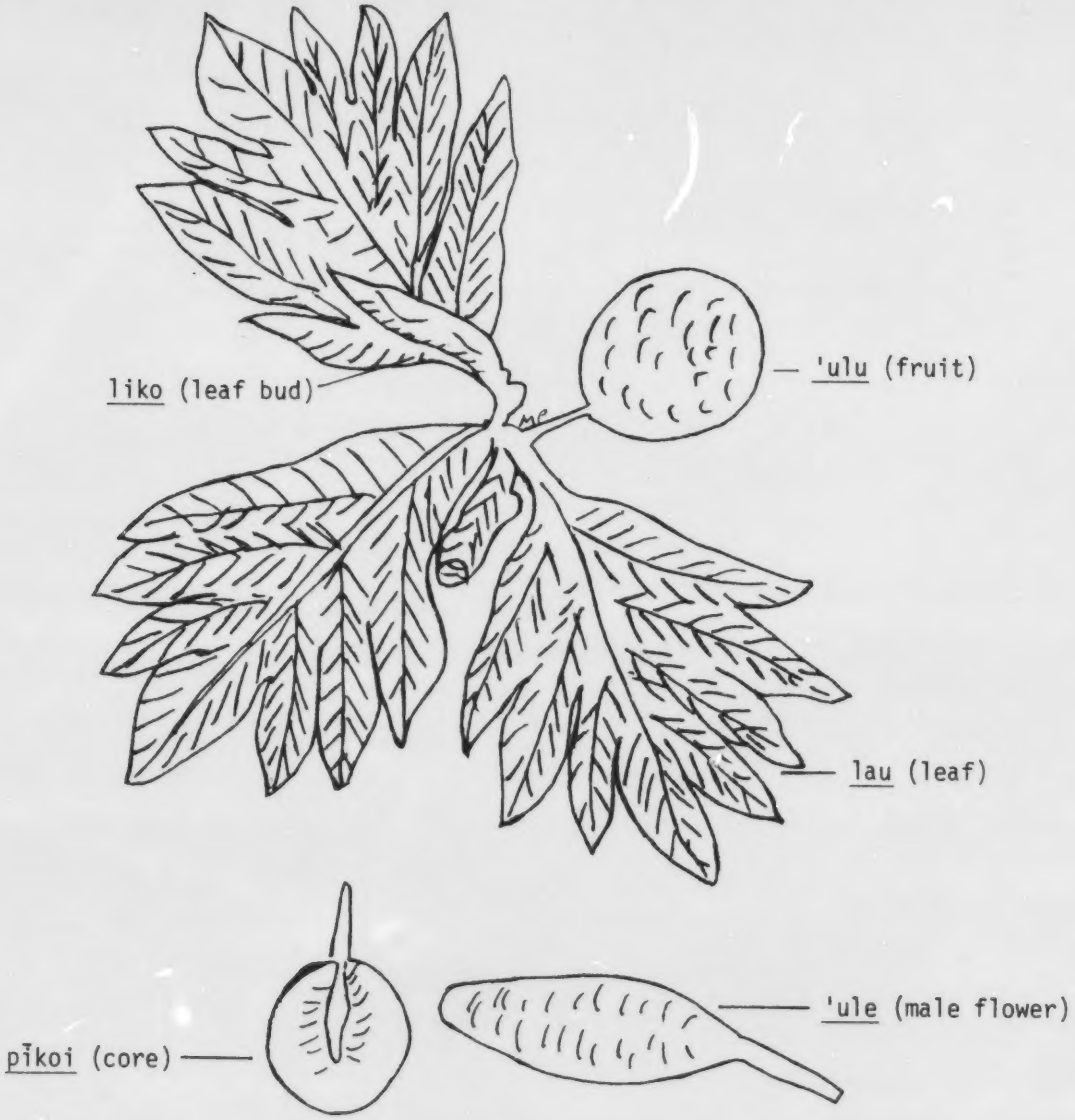
Uses: Trunk - pahu (drums) were made for hula
- papa he'enalu (surfboards)
- papa ku'i'ai (poi boards)
- ihu wa'a (bow of canoes)

Fruit - cooked and eaten for food

Sap or latex - glue and chewing gum and certain skin diseases

Leaf buds - used to cure 'ea (thrush)

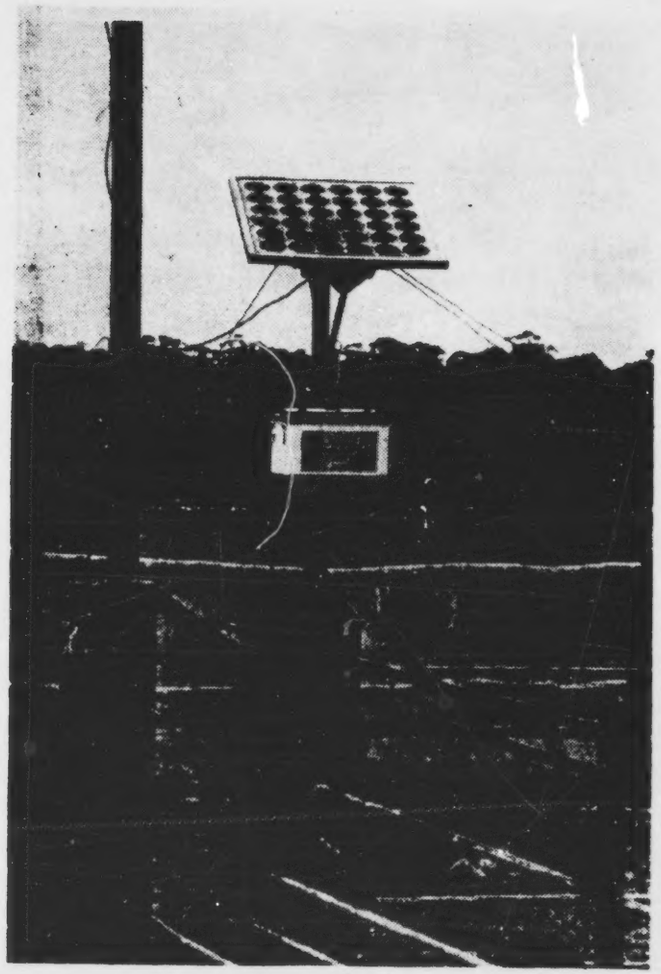
Leaves - sandpaper


liko (leaf bud)
'ulu (fruit)
lau (leaf)
pīkoi (core)
'ule (male flower)

The Honolulu Advertiser
Tuesday, September 25, 1984

# Parker Ranch

## *Using innovation to modernize a legendary spread*



Advertiser photos by Allan Miller
Another modern touch: Solar cell powers electric fence.

By Jan TenBruggencate
*Advertiser Kauai Bureau*

WAIMEA, Hawaii — Parker Ranch has a legendary quality about it.

The legend is wrapped up in images of dusty cattle drives, weathered paniolos and vast tracts of land, stretching across great expanses of the northern half of Hawaii Island. Volcanic cinderland, high green meadows, pristine shores where deep blue sea meets black lava in a line of snowy breakers.

Parker has 50,000 head of cattle on 225,000 acres, half of which it owns outright.

In size and in history, it is by far the biggest ranch in Hawaii, boasting 336 miles of water lines, 700 miles of fence and a colorful past intricately entwined with the story of these islands.

There is much more than cattle and land to the story of the ranch that Richard Smart owns. Parker Ranch today supports and is supported by a variety of other businesses and educational and cultural concerns.

And while you might think of a cattle ranch as a traditional operation that is run today as it has been for generations, you'd be wrong to think that about Parker Ranch. Innovation is the watchword as its managers try to bring the operation to stability in times that are hard on ranches.

A team of Advertiser editors and bureau chiefs on a Hawaii Island orientation tour early this month found plenty of activity in Waimea, the highland town that Parker Ranch calls home.

It begins with the ranch itself, the largest of Richard Smart's holdings. It's not enough any more just to let the cattle roam the range, round them up now and then and send them to slaughter.

The Hereford breed isn't producing as well as Parker might hope, said livestock manager Charles Kimura, a third-generation Parker employee. The ranch is going into a breeding cycle that will regularly alternate these breeds until all the ranch's cattles are mixed breeds: Hereford, Angus, Brangus (an Angus-Brahman cross) and Simmental.

The hope is to find specific mixtures that do well on specific Parker terrains, he said.

Ralph Dobbins, trustee of the Richard Smart Trust, which holds all Smart's properties, said the firm pays an unacceptable $500,000 annually in lease rentals. And the cost of those leases goes up with each renegotiation. Dobbins said the ranch hopes eventually to give up all the leased land, and run the same 50,000 head on half the land — the half Parker owns in fee.

Doing that will mean a complete change in traditional ranching. Ranch agronomist Earl Spence said the ranch has had success with its efforts at a 20-year-old technique called cell grazing. There are eight grazing cell operations at Parker already, on 5,500 acres.

In cell grazing, the land is cut up like a wagon wheel, with great wedges of pasture separated by solar-powered electrified fences. At the center is the watering site. Depending on rainfall and other factors, cattle are moved every one to three days from one wedge to the next. They come to the watering hole, the gate is closed behind them and the next day's gate is opened, so they move to new pasture.

Under this system, the pasture gets plenty of recovery time and the cattle get new grass each day or so. Spence said in areas getting 50 or more inches of rain a year, land that used to support one animal per two acres now handles two animals per acre. In drier 20-inch rainfall country that handled one animal per 10 acres in

See Innovation on Page D-2



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from page D-1

conventional grazing, one per five acres is the cell grazing figure.

The cattle are sent at 12 to 14 months, weighing about 600 pounds, to Hawaii Meat Co.'s pens at Campbell Industrial Park on Oahu, where they are carefully fed for several months until they reach 1,000 to 1,100 pounds, and then are slaughtered and marketed.

Smart owns 83 percent of Hawaii Meat, the state's largest feedlot and slaughterhouse operation, handling 22,000 to 25,000 cattle per year, or 14 to 16 million pounds of beef. Parker Ranch alone produces 9 million pounds.

(Of 94.3 million pounds of beef consumed in Hawaii last year, 53 percent came from the Mainland, 31 percent was raised here, and 16 percent came from Australia and New Zealand.)

Parker Ranch inevitably is in the land business, and has made money selling and leasing land as well as in running businesses on it. There is the Parker Ranch Broiler, Parker Ranch Lodge, Parker Ranch Shopping Center and its Parker Ranch Visitor Center.

Smart has sold large tracts of his land holdings for development.

In 1965 he sold options on more than 22,200 acres to Christiana Oil Corp. In 1967, Signal Oil bought that, and another 14,000 acres from Smart.

In 1967, Smart sold 31,000 acres at Waikoloa to a Boise Cascade subsidiary. Those land sales resulted in the development on the South Kohala coast of three exclusive resort hotels, along with the attendant golf courses, luxury home and condominium developments and upland house, ranch and farm developments.

In 1976, Smart sold 25,000 acres of cattle land at Waikii to Honolulu businessman George Isaacs, and promptly leased it back for pasture.

Smart made a dramatic expansion in ranch holdings with the 1975 purchase of 108,000 acres of C. Brewer's Seamountain Ranch, giving Parker ranches from North Kohala to South Point. But within three years, he had spun off the land in three large pieces.

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Parker Ranch has a preliminary general plan for development of its holdings around Waimea, where it has 65 to 70 percent of the land. Dobbins said the ranch would like to see a townhouse development, an industrial park, expansion of the shopping center, an equestrian center and an expansion of Parker School.

But that won't make the ranch a developer, he said.

"We cannot be in the land development business, but we're going to make land available," he said.

Smart has built a medical center and offered $100,000 a year to support a hospital in Waimea, if the state wants to build one. Dobbins said that offer will be withdrawn at the end of the year, and there's been no great interest from the state.

The prime beneficiary of Smart's estate, as his will now reads, is the small, private, Parker School. On Smart's death, the Parker School Trust is slated to get virtually everything, and will be required to run the school and the Kahilu Theater.

The $2 million theater seats 490 and is a beacon of art and culture in the cattle land. The Honolulu Symphony opens each season. Two shows are produced each year at the theater, and there are film festivals, visiting productions, recitals and an art gallery.

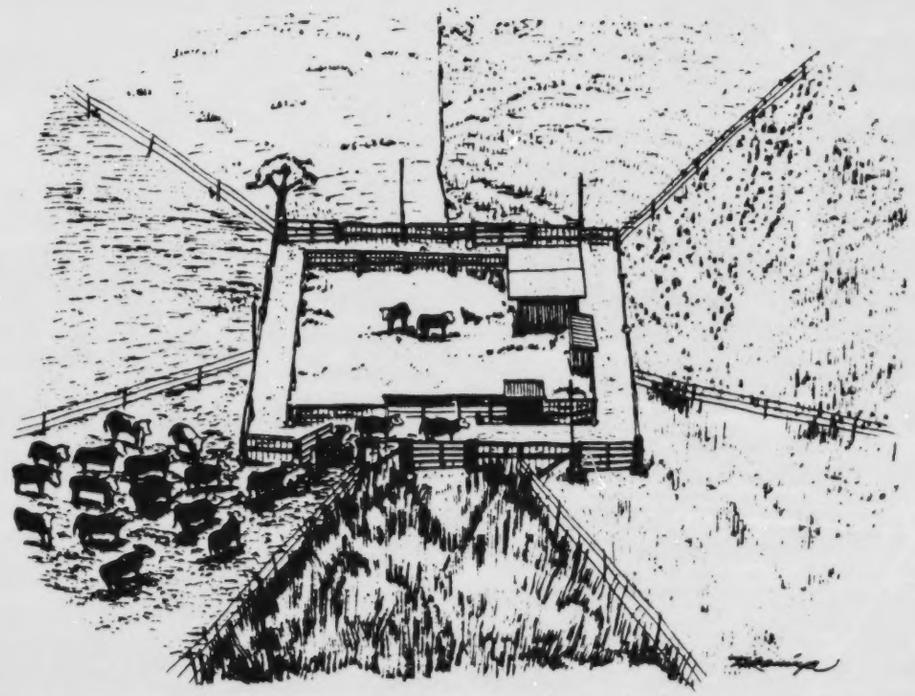
The Kahilu Theater Foundation runs it on an annual budget of $175,000 from donations, ticket sales and government grants.

Edward Van Gorder is headmaster of eight-year-old Parker School, which expects to have 110 to 120 day students next year. It has no boarding facilities, unlike nearby Hawaii Preparatory Academy. Tuition is $2,500 per year, about half of the day rate at HPA. Smart gives the school $100,000 or half its billed tuition each year, whichever is greater.

Parker and HPA are often compared, but they are quite different, said Van Gorder, a former HPA teacher. HPA is defining itself as a boarding school serving the Pacific Rim with pressure on the academics, he said.

Parker, with grades 7 to 12, is a day school designed to serve the surrounding area. It has a curriculum stressing art and creative pursuits. Students take five periods of college preparatory classes before lunch, and are involved in art, music, sports and other activities in the afternoons.

"The tension that's in the air because of the different orientation is a very healthy tension," Van Gorder said.



Advertiser graphic by James Takamiya

**In cell grazing at Parker Ranch, cattle are moved from wedge to wedge, giving them new grass every few days and allowing pasture in the other wedges plenty of recovery time. Gates are at the watering site in the center.**

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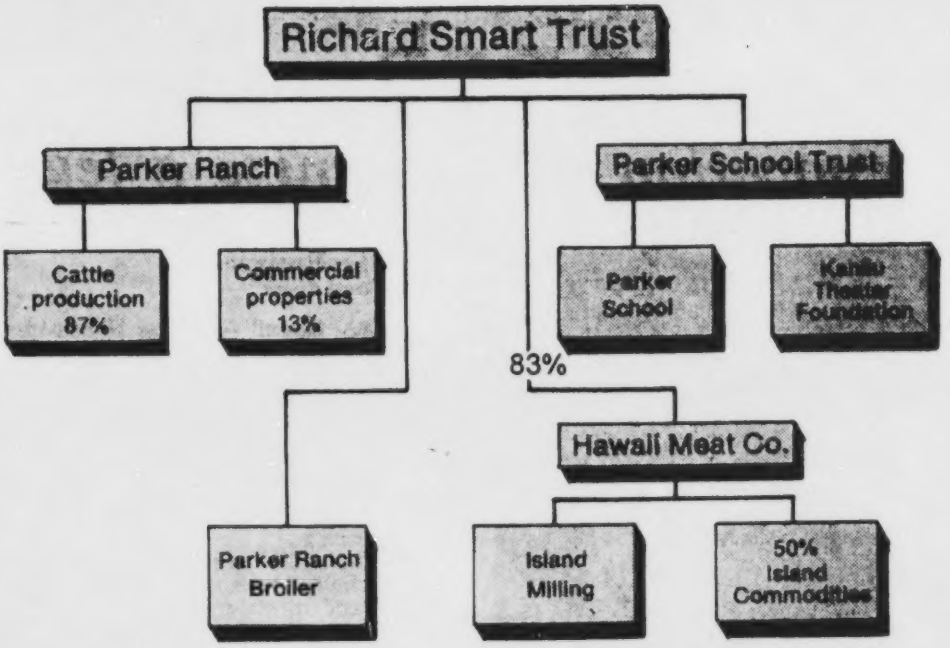
Hereford cattle now dot the rolling hills of Parker Ranch, but new breeds are to be mixed into the herd.



Advertiser photo by Allan Miller

Advertiser editors and ranch employees discuss cell grazing at Parker Ranch.

The Honolulu Advertiser, September 25, 1984

# *Parker's offspring battle over acres*

Parker Ranch's Richard Smart is only one of the descendants of John Palmer Parker, the former sailor who stepped ashore on Hawaii in 1815, at 25, to become a confidant of Kamehameha I. Parker founded the ranch.

Another 143 descendants, led by Mary Waihee, mother of the Lt. Gov. John Waihee, are in court claiming their share of the big spread. Circuit Judge Ernest Kubota has ruled Smart has undisputed claim to 8,165 acres, but a trial is needed to determine the fate of another nearly 40,000 acres.

The first Parker started with the grant of a two-acre homesite in 1847, and by his death in 1868 had acquired thousands more. His wife was Kipikane, a granddaughter of the first Kamehameha. His surviving son, John II, who was childless, and grandson Samuel, the child of another son, received nearly 47,000 acres at Parker's death. A daughter received little.

John II was a quiet, determined rancher, but Samuel Parker, a close friend of King Kalakaua, enjoyed travel, lavish parties and gift-giving. In 1887, they were forced to mortgage the ranch and turn it over to a trust company. Not until Richard Smart took over would Parker descendants again directly control the ranch.

John II and Sam each had half the ranch, but John II adopted Sam's son, John III, thus joining the halves in one line of the family. The interest passed to Annie Thelma, daughter of John III and mother of Richard Smart, and eventually to Smart himself.

The ranch was managed in trust beginning in 1899 by Alfred Wellington Carter, a Honolulu lawyer and estate manager. Representing Annie Thelma, he bought out Sam Parker, who had tried to regain control of the ranch. Thus, the ranch fell into the hands of Smart's mother. She and husband Richard Gaillard Smart had died by the time Smart was two, and he fell heir to the huge estate.

Carter bought land and breeding stock, ran water lines and repaired fences, building a modern ranch operation. Within the first five years of his stewardship, he had increased fee holdings to more than 100,000 acres.

In 1909, with a group of other Hawaii cattlemen, he bought out Hawaii's largest meat packing plant and established Hawaii Meat Co. Carter, followed by his son, Hartwell, ran the ranch as young, wealthy Richard Smart left the islands for the theater.

Smart, who is now 71, returned in 1962 to his inheritance. He was the first Parker in 75 years to directly control the ranch. And since he has willed it to the Parker School Trust, he will have been the last.

Parker School counts on inheriting Smart's holdings, but because of the pending lawsuit there is the possibility those holdings will be much smaller than they now are.

— Jan TenBrurgencate

Advertiser file photo

Richard Smart in 1962 became the first Parker in 75 years to directly control the ranch. And because of the terms of his will, he will be the last.



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# THE BEEF INDUSTRY IN HAWAI'I

Over the past 15 years the Hawaii livestock industry can best be described as a relatively stagnant industry. Cow numbers have remained about the same; the calf crop has remained about the same; the number of cattle and calves on inventory on ranches has remained about the same; and the number of cattle and calves marketed each year has remained about the same. The only real change has been a decrease in the number of ranches and an accompanying increase in size of ranches remaining, and an increase in the proportion of slaughter cattle that are marketed through feedlots.

During this same 15-year period the consumption of beef in Hawaii has increased significantly. The entire increase in consumption has been supplied by imported beef from the Mainland. Thus, it appears that a significant market exists for Hawaiian produced beef that has not been supplied in the past by the Hawaiian beef industry. The current question is -- should the Hawaiian beef industry pursue this market at the present time? or, more broadly stated, what are the options available to the Hawaiian beef industry for making adjustments that will lead to a viable industry over the long run?

Before appropriate options can be determined it is necessary to identify the characteristics of the current livestock system -- particularly the existing marketing system in Hawaii through which the product of the industry, beef, moves from the rancher to the ultimate consumer. Available options for the industry then can be analyzed as to their impact on the existing structure and their effectiveness in improving the existing system so that it will be more effective in creating a more viable beef industry in Hawaii over the long run. The purpose of this study is to describe the existing beef industry, particularly the marketing segment of this industry.



Since this report presents in detail a description of the various segments of the livestock marketing industry, this section of the report will attempt to present: 1) a description of the current flow of beef through the marketing system, i.e., what institutions are involved and what volumes flow through each; and 2) a summary of the factors most prominent in affecting and being affected by the current (and/or future alternative) marketing system.

As was pointed out earlier in this report, 53 percent of the market supply of beef in Hawaii is imported from the Mainland; 16 percent is imported from Australia and/or New Zealand; and 31 percent is supplied by beef produced in Hawaii. Figure 4 presents a diagram of the flow of beef from these three sources (Mainland, Australia/New Zealand, and Hawaii) to the final retail outlet that supplies beef to the ultimate consumer. The importance of this Figure is that it identifies the origin of the beef purchased by the various retail buyers of beef. The retail outlets that are currently purchasing beef from imported sources are the buyers that will have to be convinced to purchase Hawaiian produced beef if the market for Hawaiian produced beef is to be expanded.

Source: Schermerhorn, Richard W. et al. A Description of the Market Organization of the Hawai'i Beef Cattle Industry. Hawai'i Institute of Tropical Agriculture and Human Resources, University of Hawai'i, Honolulu, Hawai'i, August, 1982. Reprinted with permission of HITAHR.

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Figure 5 presents a more in-depth picture of the market flow of the beef provided to Hawaiian consumers by the livestock industry of the State -- from the cow-calf ranch operation through the system to the final consumer. The importance of this Figure is that it identifies the various institutions involved with performing the various functions required to provide the consumer with beef from a live animal, the calf, located on a ranch. It will be these institutions and functions that will affect or be affected by alternative options that the livestock industry may want to analyze in terms of potential future adjustments, and their effect on the viability of the industry.

The following is a listing of the factors that this study concludes are important to understand and to take into consideration when various options are being developed and/or analyzed as possible alternative marketing systems for the Hawaiian livestock industry.

1. Per capita consumption of beef in the United States and in Hawaii has been declining over the past four years. The primary factors explaining this decline are: considerable price increases for beef forcing beef out of the diets of many families through the substitution of lower priced pork, fish, and poultry; and increased preference of consumers for leaner meat (less fat) because of dietary concerns--this concern is particularly evident among upper income consumers who have been traditionally the best beef customers.

2. Hawaii is a small regional market that cannot act independently of the national market of which it is part. Thus, in terms of imports from foreign countries and national livestock industry conditions, Hawaii cannot separate itself from the rest of the United States.

3. The price structure for beef in Hawaii is determined by supply and demand conditions on the Mainland. This supply and demand condition includes consideration of both Mainland produced beef and the importation of foreign frozen boneless beef. Prices for higher quality Hawaiian produced beef competing with beef imported from the Mainland are established at Mainland prices plus the cost of transportation to Hawaii. Lower quality beef produced in Hawaii is priced at the same level that imported Australian/New Zealand beef is priced on the Mainland.

4. Since the Hawaii beef industry must compete with the Mainland beef industry on quantity, quality, and price levels, it must be able to produce, fatten, slaughter, and sell on a relatively equal cost basis, unless it is willing to accept lower profit margins than its counterparts on the Mainland.

5. As presently operating, the Hawaii livestock industry is not cost competitive with the industry on the Mainland. Grain, if fed to cattle, must be shipped from the Mainland as do most of the other inputs to cattle production. Current operating levels of feedlots and slaughter plants are at much less than capacity and rated capacities are much less than most facilities on the Mainland. Thus, economies of size achievable on the Mainland are not achieved in Hawaii.

6. Hawaii is a "pocket market" which means that Hawaii cattlemen are restricted to selling their cattle within their own local state market. This is also true for the sale of beef from Hawaiian slaughter plants. The reason is that no one is willing to pay transportation costs to the Mainland.

7. Major retail outlets in Hawaii (restaurants, hotels, and retail supermarkets) express concern that the Hawaii beef industry cannot supply beef in the form they desire (uniform weighted, trimmed cuts, vacuum packed primals and sub-primals, etc.) nor can it supply beef in the consistent quantities, qualities, and on the short notice that frequently is necesary for many retail outlets.

8. Slaughter plants in Hawaii lack the ability to establish permanent markets in many cases because they are unable to provide consistent quality and quantities of beef to retail outlets. This is because they do not control the supply of cattle entering the slaughter plants. Ranchers generally maintain ownership until slaughter and thus send cattle to slaughter when they determine is the time to do so. Coordinated marketing of livestock is generally non-existent throughout the entire livestock system.

9. Frozen beef imported from Australia and New Zealand is very acceptable to manufacturers of processed beef and hamburger. It is available in unlimited quantities, on short notice and the supply is reliable. Further, it is priced at rates the Hawaiian beef industry finds extremely difficult to compete with. Finally, while the Hawaiian beef industry is suffering hardships in terms of reduced markets, the beef consumers in Hawaii are able to buy certain types of beef at prices below that which would result if Australian and New Zealand beef was not imported into the state.

10. There is almost a complete lack of communication between and within the various segments of the industry. Ranchers do not fully understand the pricing system, members of one segment do not know what type of adjustments they should make in response to adjustments in another segment, and there is little coordination of activities among and between the various segments. This promotes a great deal of mistrust among these segments. Typically, the response to a suggestion that there is a need for the industry to "get together" is that it isn't possible because the largest ranch (and its feedlot and slaughter plant) is able to survive on its own and thus is not interested in discussing common problems and solutions. And, without them there is not enough volume to make feasible adjustments in the industry. Discussions with personnel from this ranch do not verify the conclusion that they are not interested in discussing common problems and solutions. In fact, their attitude is just the opposite. But due to the lack of communication in the industry, discussions have never taken place.

The demands being placed upon the cattle and beef marketing system in Hawaii are constantly changing. New technological developments in production, processing, and distribution and changes in the economic environment in which the various segments of the industry operate and changes in consumer demands must be adapted to if the industry is to survive. Above all it must be remembered that competition on the part of the various segments of the industry for increased profits through improved markets and methods of marketing is not limited to the beef industry in Hawaii -- the Hawaii livestock industry is an integral part of the U.S. beef industry and thus must successfully compete with its counterparts on the Mainland if it is to survive.

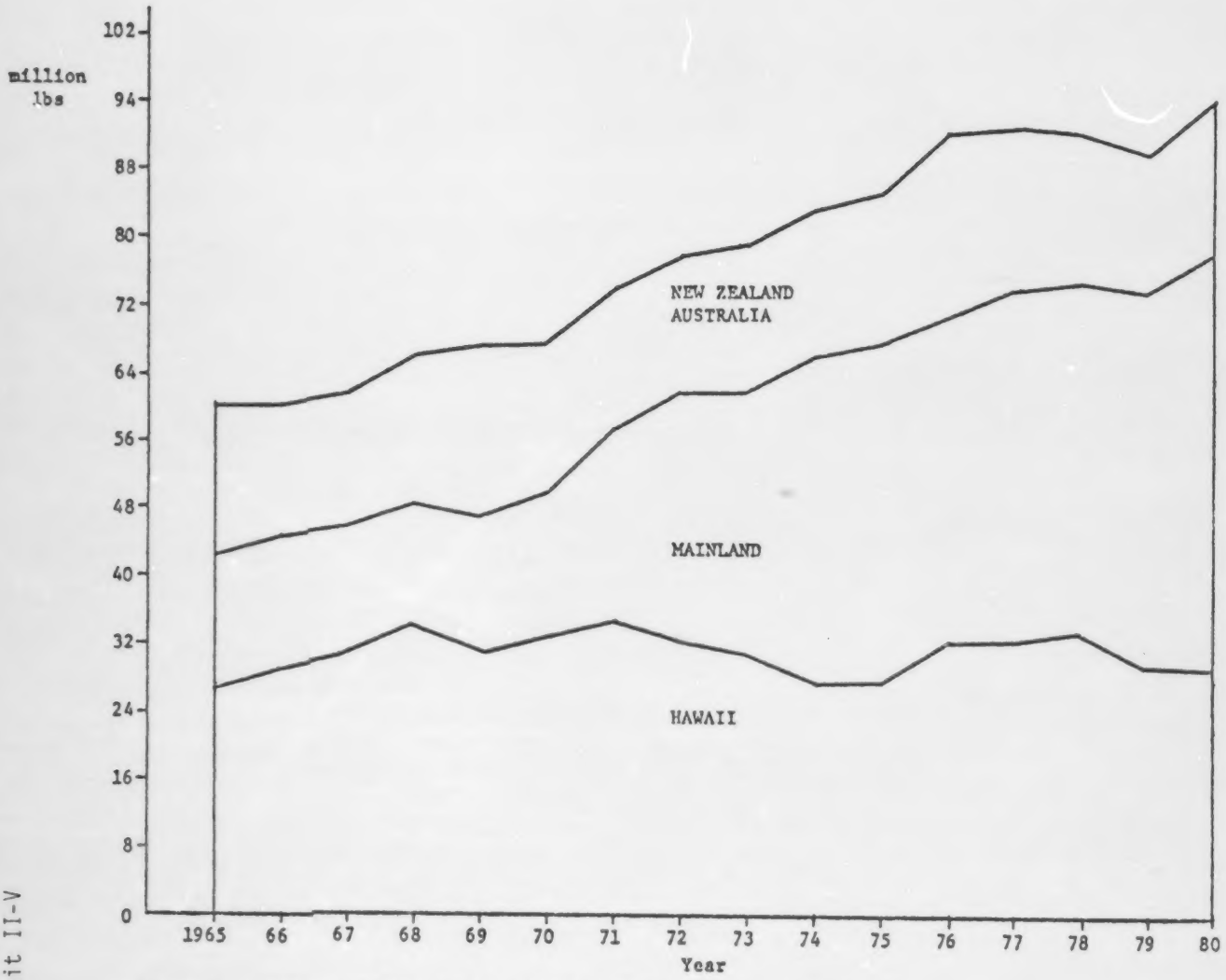


Figure 3. Market Supply of Beef and Veal, State of Hawaii, 1965-1980

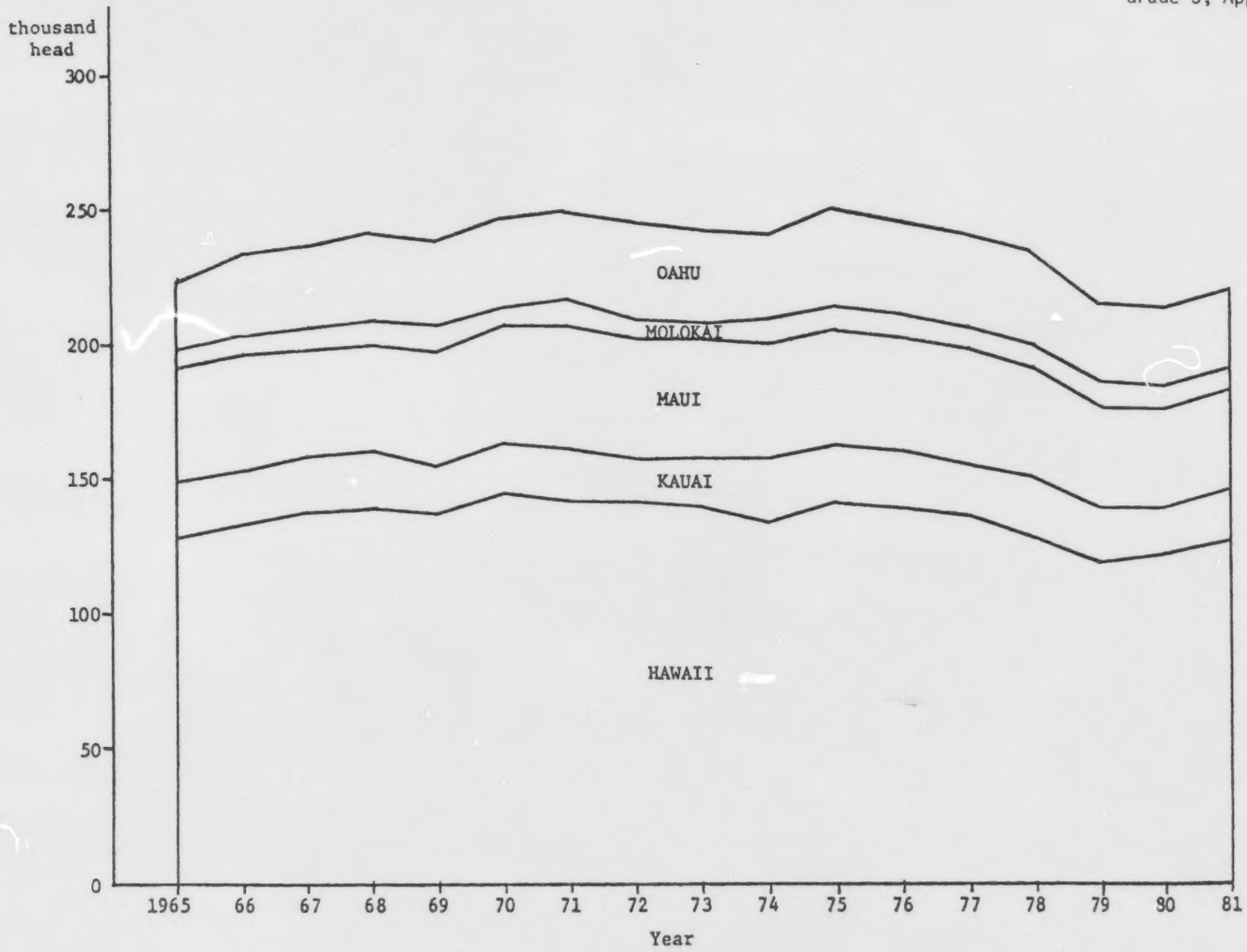


Figure 1. Cattle and Calves: January 1 Inventory, By Islands, State of Hawaii, 1965-1981

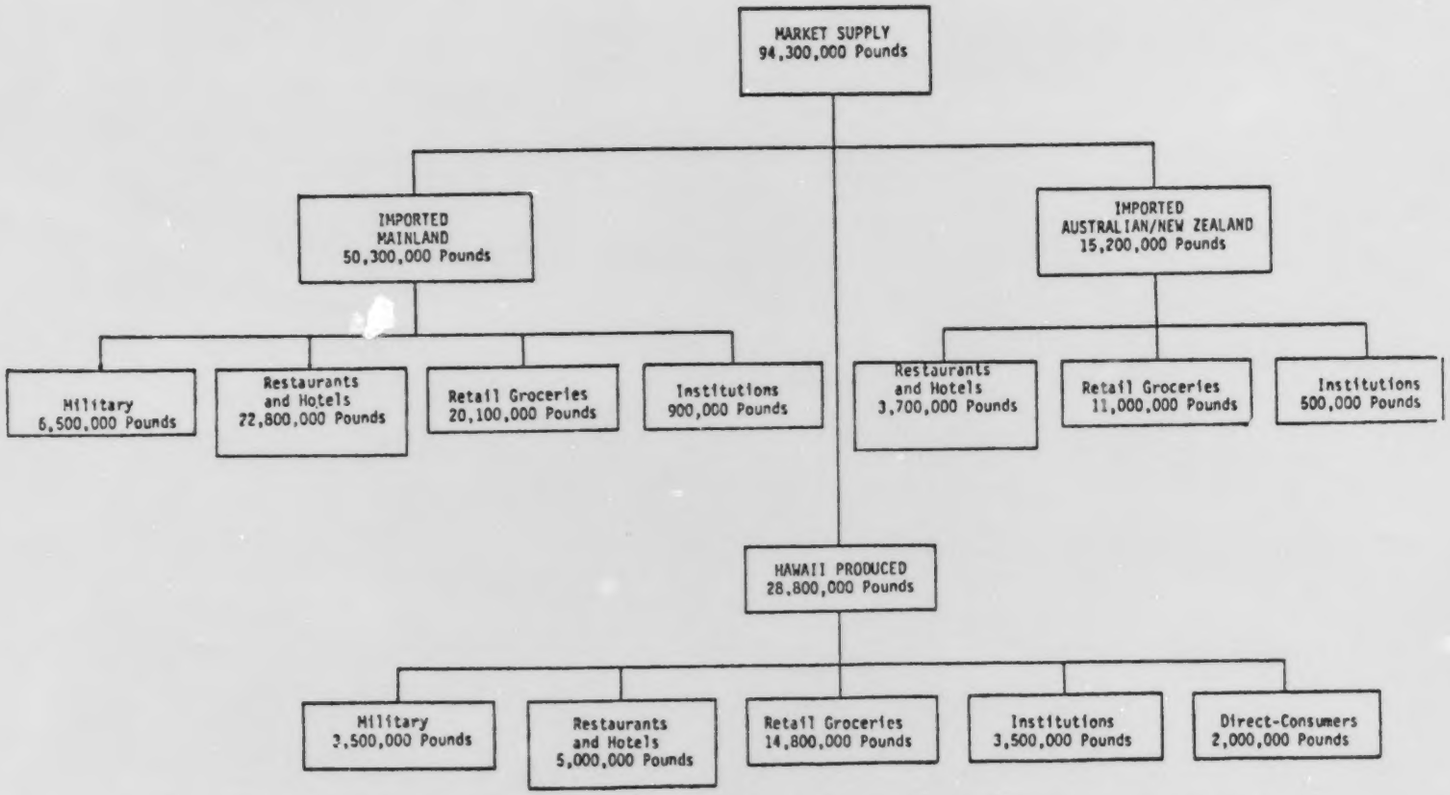


Figure 4. Market Flow of Hawaiian Produced and Imported Beef To Final Retail Outlets, Hawaii, 1980 (Pounds are carcass weight equivalents)

Source: Schermerhorn, Richard W. et al. A Description of the Market Organization of the Hawai'i Beef Cattle Industry. Hawai'i Institute of Tropical Agriculture and Human Resources, University of Hawai'i, Honolulu, Hawai'i, August, 1982. Reprinted with permission of HITAHR.

# INTERVIEWING

Tips for Interviewers

1. Start with questions about the person's background and younger life.
2. Avoid questions that can be answered with yes or no; ask questions that begin with what, when, where, why and how.
3. Relax and listen intently.
4. Take some notes; but don't slow down the interview.
5. Show interest in everything he/she says.
6. Maintain an atmosphere which is comfortable.
7. Don't interrupt the interviewee.
8. Keep the interviewee on the subjects being discussed.
9. Encourage the interviewee to describe the role he/she was in at the time of the event being described.
10. Keep the taperecorder on; avoid turning it off and on.
11. End the interview on time.
12. Thank your interviewee.

# INTERVIEWING

Steps to follow

1. Call your interviewee and make the appointment.
2. Prepare yourself so you have all your questions ready, your tape recorder loaded with batteries, and a notebook ready for some note taking.
3. When you arrive, introduce yourself and sit close to your tape recorder and in a quiet spot.
4. Begin the interview with a brief introduction by stating the name of the interviewee, your name, the date, place and time of the interview.
5. When the interview is over, check your notes for correct spelling of names and places, clarify points that need to be clarified, label the tape and punch out the tabs to prevent erasure of the tape.
6. Thank your interviewee for his/her cooperation and time.

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## Additional Verses for "Nā Moku 'Ehā"

The lyrics and music for the first four verses by J. Kealoha can be found in King's Book of Hawaiian Melodies, p. 80.

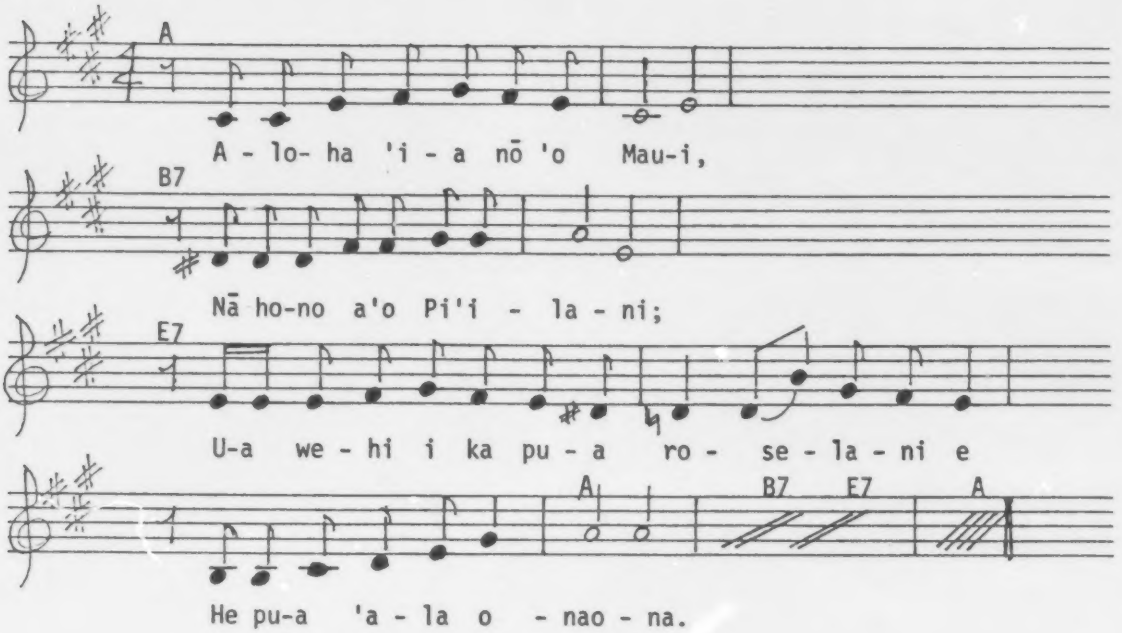
| | |
|---|---|
| 5. Aīwaīwa Moloka'i lei i ke kukui<br>Kuahiwi nani lā 'o Kamakou | Mysterious Moloka'i garlanded with the kukui<br>And its lovely mountain Kamakou |
| 6. Hiehie Lāna'i lā lei i ke kauna'oa<br>Kuahiwi nani lā 'o Lāna'ihale | Cherish Lāna'i garlanded with the kauna'oa<br>And its lovely mountain Lāna'ihale |
| 7. Ua kapu 'o Ni'ihau lei i ka pūpū<br>Kuahiwi nani lā 'o Pānī'au | Forbidden Ni'ihau garlanded with shells<br>And its lovely mountain Pānī'au |
| 8. Panoa Kaho'olawe lei i ka hinihina<br>Kuahiwi nani lā 'o Luamakika | Barren Kaho'olawe garlanded with the hinahina<br>And its lovely mountain Luamakika |
| 9. Ha'ina 'ia mai ana ka puana lā<br>*Kuahiwi nani lā o nā moku _____. | Tell the refrain<br>Of the lovely mountains of the _____islands. |

*When singing more than four verses, insert the number of islands being sung about.

| | |
|---|---|
| nā moku 'elima | the five islands |
| nā moku 'eono | the six islands |
| nā moku 'ehiku | the seven islands |
| nā moku 'ewalu | the eight islands |

Composed by Noelani Māhoe.

# ALOHA 'IA NŌ 'O MAUI

By Alice Johnson

| | |
|---|---|
| A | |
| Aloha 'ia nō 'o Maui, | Maui is indeed beloved |
| B7 | |
| Nā hono a'o Pi'ilani; | The bays of Pi'ilani (poetic name for Maui); |
| E7 | |
| Ua wehi i ke pua roselani e | Adorned with the roselani flower |
| A | |
| He pua 'ala onaona. | A flower of sweet fragrance. |
| | |
| A | |
| Kaulana 'oe iā Kahului | You are famous because of Kahului |
| B7 | |
| I ke kai holuholu e | With the rising and falling sea |
| E7 | |
| A me ka uapo ho'okipa malihini ea | And the wharf which welcomes visitors |
| A | |
| I kou 'āina nani e. | To your lovely land. |

# ALOHA 'IA NŌ 'O MAUI

| | |
|---|---|
| A | |
| Ha'aheo wale ho'i 'oe | You take great pride |
| B7 | |
| I Kepaniwai o 'Īao; | In Kepaniwai Stream at 'Īao; |
| E7 | |
| Māka'ika'i mau 'ia ana lā | Always being visited |
| A | |
| E nā malihini e. | By sightseers. |
| | |
| A | |
| Kilakila Haleakalā, | Haleakalā is majestic, |
| B7 | |
| Kuahiwi nani o Maui; | Lovely mountain of Maui; |
| E7 | |
| Kaulana kona inoa puni Hawai'i | Its name is famous throughout Hawai'i |
| A | |
| I ke alanui kīke'eke'e. | Because of the zigzagged road. |
| | |
| A | |
| Ha'ina mai ka puana, | The story has been told, |
| B7 | |
| 'O Maui nō e ka 'oi | Maui is the best |
| E7 | |
| Me kona nani ho'oheno ea; | With its cherished beauty; |
| A | |
| He nani poina 'ole. | An unforgettable loveliness. |

Alice Johnson/these words from
Kealoha Lake from AJ's tape 7/27/84.

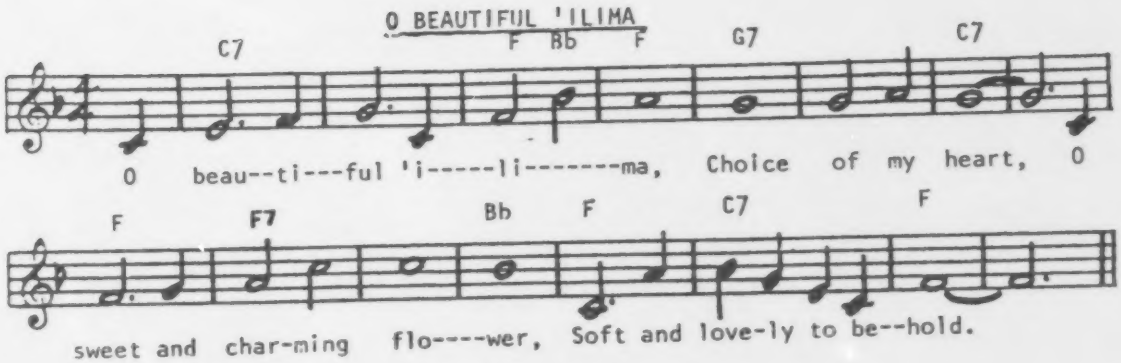
Reprinted with permission of the estate of Alice Johnson.
(These lyrics were transcribed by family members from a tape made by Auntie Alice prior to her passing away. Mahalo is expressed to Kealoha Lake for her kōkua in securing these lyrics.)

# O'ahu

Color: Melemele  Flower: 'Ilima  Song: O Beautiful 'Ilima

ALOHA O'AHU

F
Aloha O'ahu
B♭
Lei ka 'ilima
G7
Kohu manu 'ō'ō
C7  F
Hulu melemele.

O BEAUTIFUL 'ILIMA

180

Grade 3, Appendix Unit II-Z

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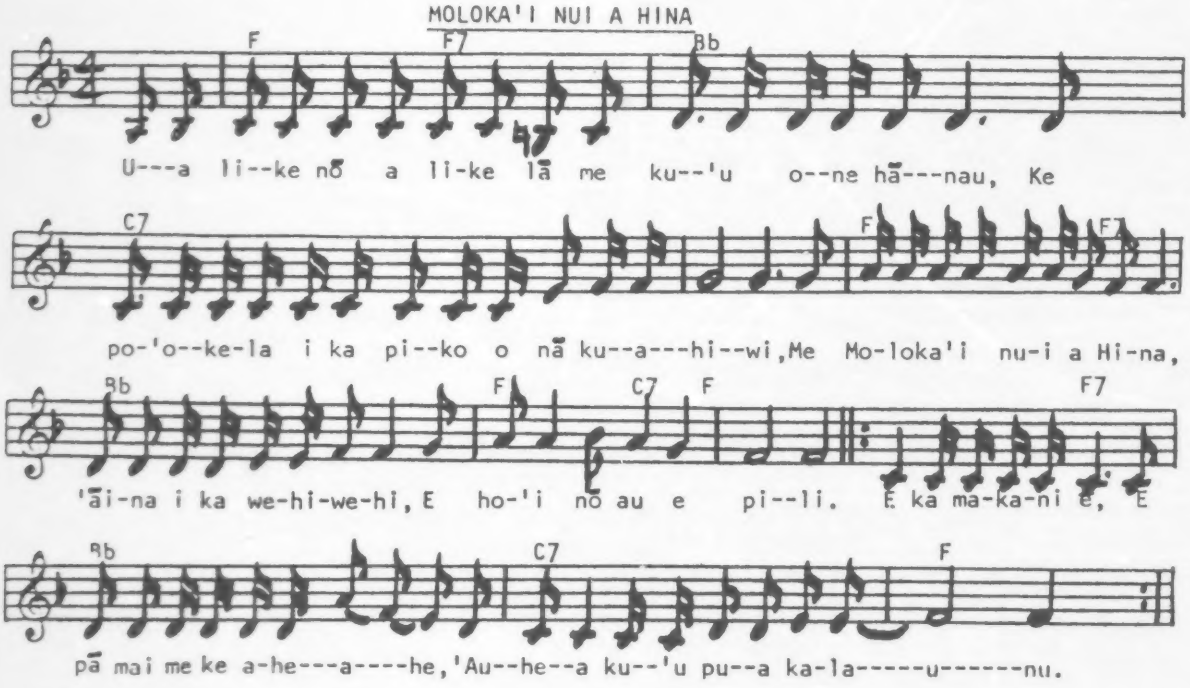
# Moloka'i

Color: 'Ōma'oma'o  Flower: Kukui  Song: Moloka'i Nui A Hina

MOLOKA'I NUI A HINA




That is exactly the way,
With the land of my birth,
The very top of the summit of the mountain,
Moloka'i-child-of-Hina,

Land adorned,
I shall return to be with you.
O wind, blowing gently hither,
Where is my crown flower?

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# Kaua'i

Color: Poni

Flower: Mokihana
(is a berry, not a flower)

Song: Maika'i Kaua'i

182

MAIKA'I KAUA'I

F F7 Bb

Mai--ka-'i nō Kau------a---'i, He--mo-le-le i ka mā---li--------e,

C7 F

Ku--a---hi-wi Wai-'a-le----'a---le, Lei a--na i ka mo--ki----ha----na.

F F7 Bb

Mai-ka--'i wa--le nō Kau-a--'i, He-mo-le-le wa--le i ka mā--li---e,

C7 F

Ku--a--hi-wi na--ni Wai-'a-le-'a--le, Lei a-na i ka mo-ki---ha--na.

Beautiful indeed is Kaua'i,
Blest with serenity,
Mount Wai'ale'ale,
Adorned with mokihana.

Very lovely indeed is Kaua'i,
So blest with serenity,
Beautiful mountain, Wai'ale'ale,
Adorned with mokihana.

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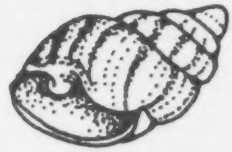
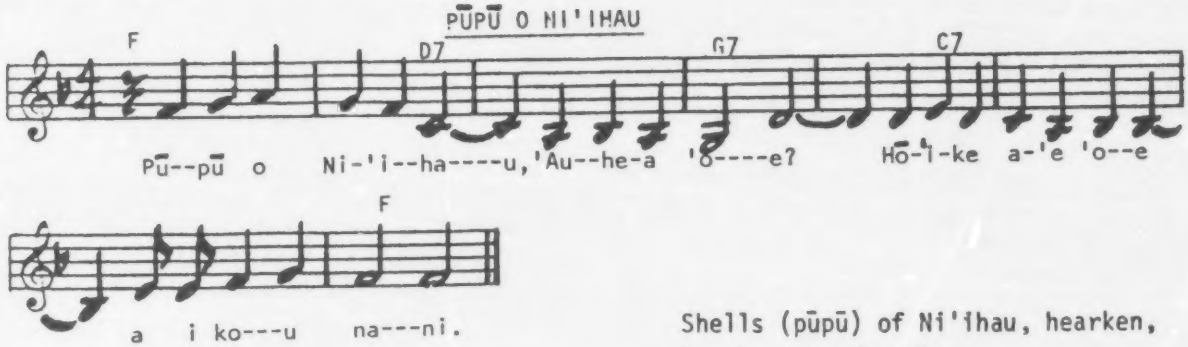
# Ni'ihau

Color: Ke'oke'o

Flower: Pūpū (shells)

Song: Pūpū o Ni'ihau






Shells (pūpū) of Ni'ihau, hearken,
Display your beauty.

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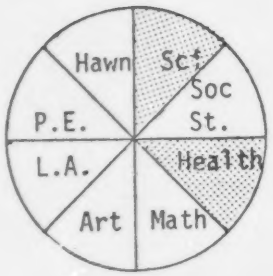
NPE: 1.8 Realize food must be digested before they can be used by the body.

NPE: 1.9 Identify substances in food that are used for energy, growth and health.

NPE: 1.13 Describe the digestive process.




GRADE: 3
TIME: 30-40 min.

## 12. DIGESTION GAME
For Grow, Glow, and Go
Food Classification

Activity: Play the Digestion Game to summarize the major processes involved in digestion and the use of nutrients by the body.

Materials:
1 Game board/1-3 students
1 Spinner, die or other number generator/1-2 students
1 Token master sheet/1-3 students
1 Worksheet-student (Questions about Digestion Game)
Overhead projectoral of game board and tokens (Optional)

Suggested Procedure

This game is designed to be used after students have studied the basics of digestion and categorized foods as Grow, Glow, and Go foods. The following concepts are embedded in the game:

1. Foods must be processed in the mouth by chewing before swallowing.
2. Go foods (foods rich in carbohydrates) are digested in the mouth and intestines.
3. Grow foods (foods rich in fats and proteins) are mainly digested in the stomach and intestine.
4. Glow foods (foods rich in vitamins and minerals) are mainly digested in the intestine.
5. Foods must be converted to nutrients in order to nourish the body. Nutrients, not food are circulated through the body. Nutrients are absorbed primarily in the small intestine and carried by the body to all parts in the body.
6. Go nutrients (carbohydrates) are used as energy sources. At this point the fact that both protein and fats can also be used as energy sources is not as important.
7. Grow nutrients (proteins and fats) are used to build body structures.
8. Glow nutrients (minerals and vitamins) are essential to a healthy body.

9. Water is removed from wastes in the large intestines.

10. Waste is returned to the environment.

Entry

Introduce the Digestion Game and the rules to be followed. You may wish to have the class follow a game with one or two players using an overhead projection of the gameboard. Rules can be explained in the context of the play.

1. Players: 1-3

2. Winners of game must:

   a. Get food digested.

   b. Get nutrients of their food to be used in the body for Grow, Glow or Go functions.

3. Loser goes out of the system as waste.

4. Begin play.

   a. Select a food token. Decide if it is a Go, Grow or Glow food.

   b. Students take turns throwing a single die or spinning a spinner. From start, move the food token the number of spaces shown on the die or spinner.

   c. Food remains in the mouth being chewed or digested until token rests on Swallow. Only at this time may the food go into the stomach.

      1. If it is a Go food it may be digested during the process of being chewed and may become a nutrient by landing on "Go Food Digestion." Grow and Glow foods are not digested in the mouth.

   d. Food and Go nutrient can go into the stomach after they land directly on Valve Opening. A Grow food may be digested in the stomach and become a Grow nutrient. Go and Glow foods are not digested in the stomach.

   e. Food and Go or Grow nutrients can enter intestine after they land directly on Valve Opening square.

      1. If a food rests on a space calling for its digestion, it becomes a nutrient. That is, if a Go food was not digested in the mouth, it can still be digested in the small intestine if the token lands on the Go Food Digestion square. Grow and Glow foods can also be digested in the small intestine and become Grow and Glow nutrients.

      2. Food cannot be absorbed unless it is digested, that is, the food has been broken down into a nutrient. Nutrients are absorbed only when they land directly on the appropriate Absorption Square.

3. Nutrients are absorbed and can go into the circulatory system when token rests on space calling for its absorption.

f. In the circulatory system, nutrients move through the pathway that results in their proper use by the body. For example, Go nutrients follow the circulatory pathway that results in their use as energy.

g. If food and nutrients have traveled through the small intestine without being digested or absorbed, they may be recycled back to Begin Intestinal Digestion if token rests on space labeled Go Back To Begin Intestinal Digestion.

h. Food or nutrients reaching the large intestine exit as waste.

Allow students to play the game several times.

Notes on the game

The game can be played according to "chance" or by using "strategy."

Chance. Students must move the number of spaces shown on the face of the "counter" (die, spinner, etc.) each time they have a turn. By this technique, many foods and/or nutrients will pass out of the system as waste. Chance is best used for a student playing alone.

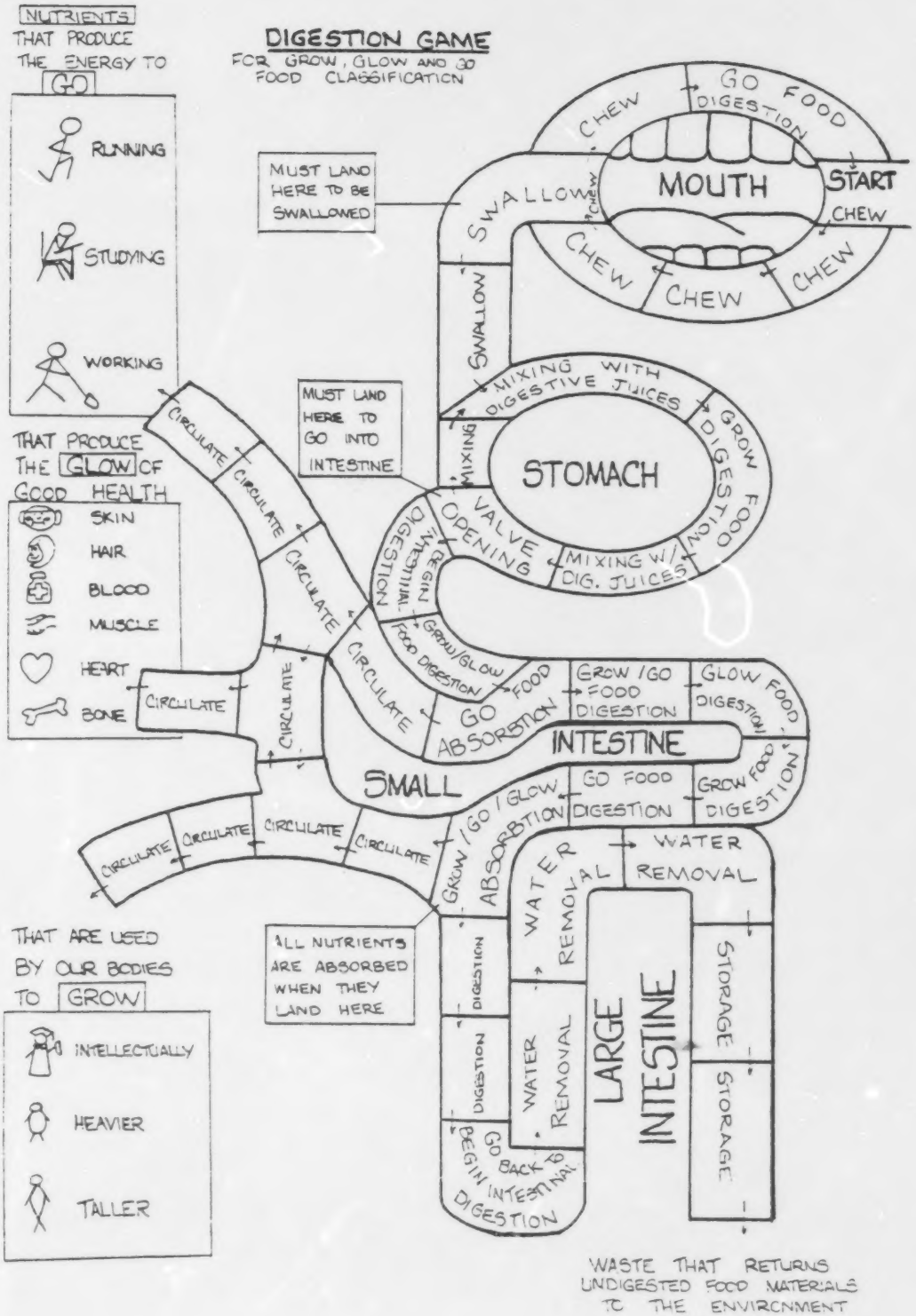
Strategy. If the game becomes a contest to see which nutrient can first be used, then the players can employ strategy. Here students need not make a move until they have a desired counter number. This way they can ensure being digested and absorbed. A strategy game can be used with groups of students.



Follow-up

After students have played the game and are familiar with the concept of the game, hand out the worksheet "Questions about Digestion Game." This can be answered individually or in small or large groups.

Nutrition Education Instructional Guide, K-3, RS 84-6804, pp. 3-77 to 3-82. September, 1984.





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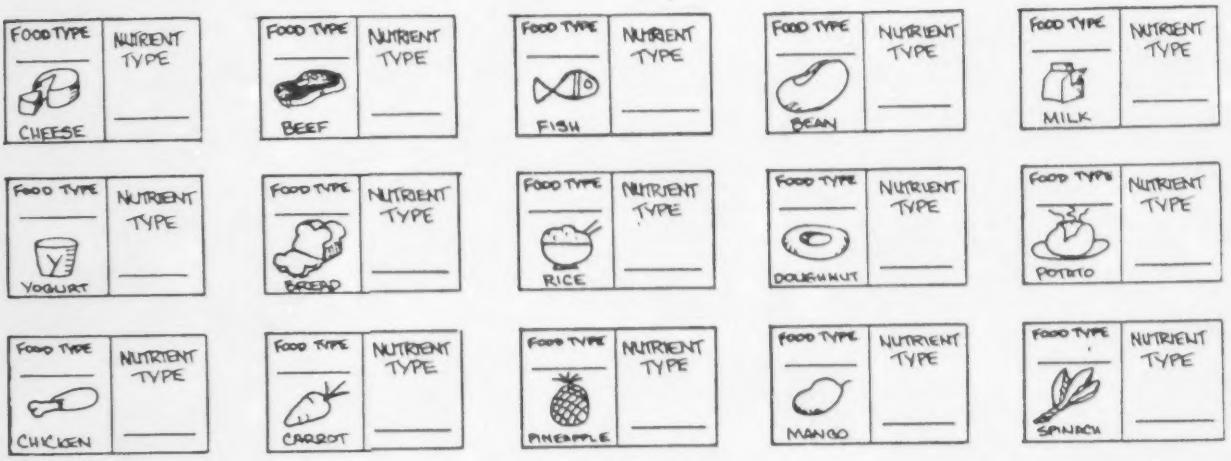
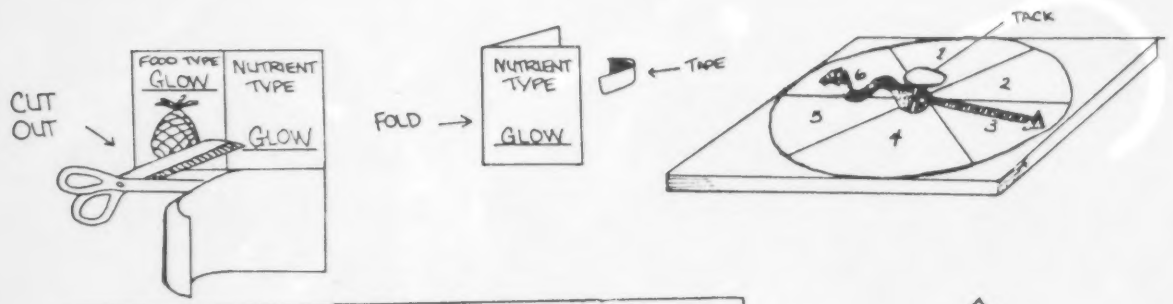
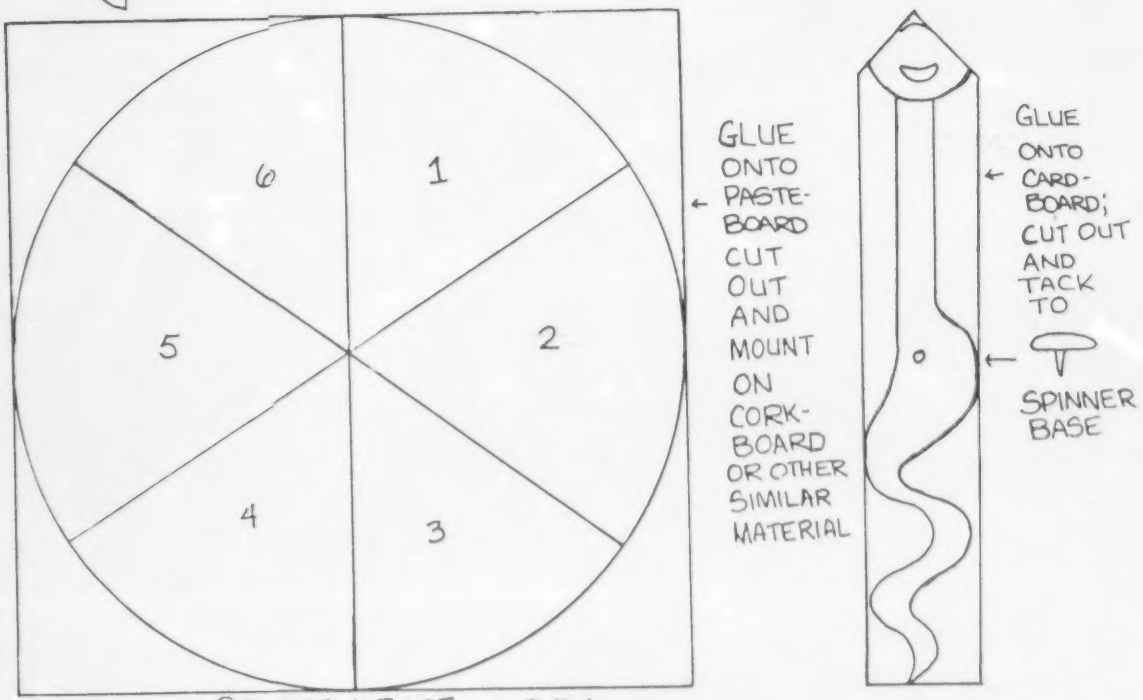
DIGESTION GAME FOR GROW, GLOW, AND GO CLASSIFICATIONS

Token/Spinner Master Sheet




SPINNER BASE

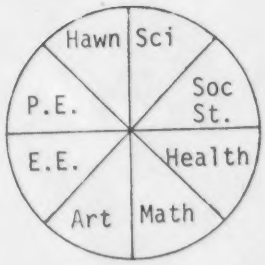
DIGESTION GAME FOR GROW, GLOW AND GO (S) NAME_____

Questions about Digestion Game

1. What happens to <u>all</u> the food in the mouth?_____
2. What kind of foods can be digested in the mouth?_____
3. What happens to <u>all</u> foods in the stomach?_____
4. What kind of foods can be digested in the stomach? _____
5. What kind of nutrients are absorbed in the small intestine? _____
6. What kind of foods can be digested in the small intestine?_____
7. What happens to waste in the large intestine?_____
8. What happens to foods when they are digested? _____
9. What happens to nutrients when they are absorbed?_____
10. How do nutrients get to the place where they are used?_____
11. How are the "go nutrients" used in our bodies?_____
12. How are the "grow nutrients" used in our bodies?_____
13. How are the "glow nutrients" used in our bodies?_____
14. What are some examples of go foods? _____
15. What are some examples of grow foods?_____
16. What are some examples of glow foods? _____

NPE: 2.8 Realize food contains substances call nutrients.

NPE: 2.10 Realize foods can be classified into food groups.




GRADE: 3

TIME: 40 minutes

## 13. FOODS RUMMY FOR GROW, GLOW, AND GO CLASSIFICATION

Activity: Give practice in identifying foods and placing them into the foods categories of the Grow, Glow, and Go system.

Materials: 1 Set of playing card sheets/group of 2-3 students
Clear cellophane tape
1 Pair scissors/student
(Optional) colored pencils or crayons
Alternate: ready game deck.

Suggested Procedure

Specific amounts of foods from food groups are served to assure that the nutrient content of meals is adequate. The simplest of these groupings is a classification based on the catchy mnemonic of the 3 G's--Grow foods, Glow foods, and Go foods. As students become more sophisticated, other ways of grouping foods will be presented. Read Food Groups and Nutrient allowances (Appendix) for a more extended list of food groupings.

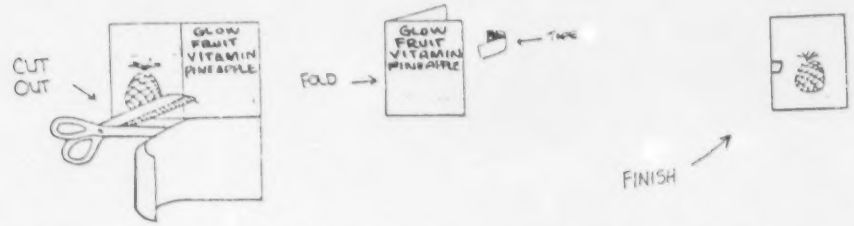
This activity is designed to help students recognize the foods that are classified into each of the three groups.

Entry

1. Make a card deck.

   a. Give each group of 2-3 students a set of card sheets.

   b. Have students cut out the cards, fold them, and bind them with tape. Coloring is optional. Cards can also be glued to index cards and then laminated.




Nutrition Education Instructional Guide, K-3, RS 84-6804, pp. 3-82 - 3-87. September, 1984.

c. Note: Be sure cards are folded flat.

2. Identifying 3 G's with food types.

   a. Have students work in groups of 2-3 to sort the deck into Grow, Glow, and Go foods. (Food type is found on back and should be used only to resolve disagreements.)

   b. Have student report on the type of foods that make up each group.

| | |
|---|---|
| Breads-Cereals-Grains-Sweets | GO |
| Meat-Fish-Poultry-Beans-Eggs | GROW |
| Dairy or milk Products | GROW |
| Fruits and Vegetables | GLOW |

3. Game A. Recognizing 3 G's groups. Players 2-3

   a. Shuffle cards and place deck on desk picture side face up.

   b. Play. First player states the group in which the food represented on the top card belongs. The card is turned over to check the answer.

      1) If the statement is correct, player keeps card. (Student gains a point.)

      2) If the statement is incorrect, card is returned to bottom of deck, picture up. (Student does not gain a point.)

   c. Second player then follows same operation as player 1, followed by player 3.

   d. Winner is the person with the most cards after all cards are identified.

4. Game B. 3 G Rummy. Players 2-3

   a. Shuffle deck. Deal each player four cards, picture side up. Players hold hand, picture side out (as in handling a regular card deck.) Place deck picture up. Place one card on discard pile also picture up.

   b. Winner of game is the first player to lay down cards of the same food group.

   c. First player may lay down hand if all cards are of the same group. If not the first player may:

      1) select the card in the discarded pile, or

      2) take a card from the bottom of the deck. (This is done to preserve the level of chance.)

      First player may now

      1) lay down four of a kind, or

      2) discard one card picture side up. Each player must retain only four cards.

   d. Second player has the same option as player 1. Play continues until one player lays down four of a kind.

5. Game C. On the Table 3 G Rummy.

   This game is played the same as basic 3 G Rummy except that players do not hold cards in their hands at any time. Thus they cannot see what groups the food represents. (This information is on the back.) Cards are dealt picture up on the table. Pictures only are shown until a player claims to have 4 of a group. At this time cards are turned over to check.

   If a player is incorrect, that player is out of the game and play continues with remaining players.

Follow-up Activity

Have students cut pictures out of magazines or newspaper grocery ads and make a food group poster.

GLOW
FRUIT
VITAMIN

PINEAPPLE

GROW
MEAT
PROTEIN

FISH

GLOW
VEGETABLE
VITAMIN
MINERALS

LETTUCE

GLOW
FRUIT
VITAMIN C

PAPAYA

GROW
MEAT
PROTEIN

CHICKEN

GLOW
VEGETABLE
VITAMIN
MINERALS

RADISH

GLOW
FRUIT
VITAMIN

APPLE

GROW
MEAT
PROTEIN

SHELL
FISH

GLOW
VEGETABLE
VITAMIN
MINERALS

CARROT

FOODS RUMMY FOR BASIC GROW, GLOW AND GO

Playing cards
1 of 4

368

369

GLOW
FRUIT
VITAMIN

LEMON

GROW
MEAT
PROTEIN

BEEF
STEAK

GLOW
VEGETABLE
VITAMIN
MINERALS

CELERY

GROW
DAIRY
PROTEIN
CALCIUM

MILK

GO
BREAD
CARBOHYDRATE

BREAD

GROW
DAIRY
PROTEIN
CALCIUM

CHEESE

GO
CEREAL
CARBOHYDRATE

RICE

GROW
DAIRY
PROTEIN
CALCIUM

ICE CREAM

GO
SWEET
CARBOHYDRATE

SUGAR

FOODS RUMMY FOR BASIC GROW, GLOW AND GO

Playing cards
2 of 4

370

371

GROW
DAIRY
PROTEIN
CALCIUM

YOGURT

GO
CEREAL
CARBOHYDRATE

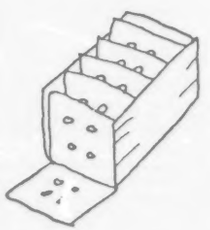
SPAGHETTI

GLOW
VEGETABLE
VITAMIN
MINERAL

BROCCOLI

GROW
BEANS (MEAT)
PROTEIN

BEANS



GO
BREAD
CARBOHYDRATE

CRACKERS

GLOW
FRUIT
VITAMIN
MINERAL

TOMATO

GROW
MEAT
PROTEIN

EGG

GO
SWEET
CARBOHYDRATE

COOKIES

GLOW
FRUIT
VITAMIN

GRAPE

FOODS RUMMY FOR BASIC GROW, GLOW AND GO

Playing cards
3 of 4

372

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GO
CEREAL
CARBOHYDRATE

BREAKFAST
CEREAL

GO
GRAIN
CARBOHYDRATE

FLOUR

GLOW
VEGETABLE
VITAMINS
MINERALS

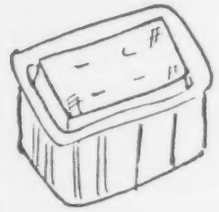
WATER
CRESS

GO
SWEET
CARBOHYDRATE

CAKE

GO
STARCHY
ROOT
CARBOHYDRATE

SWEET POTATOES



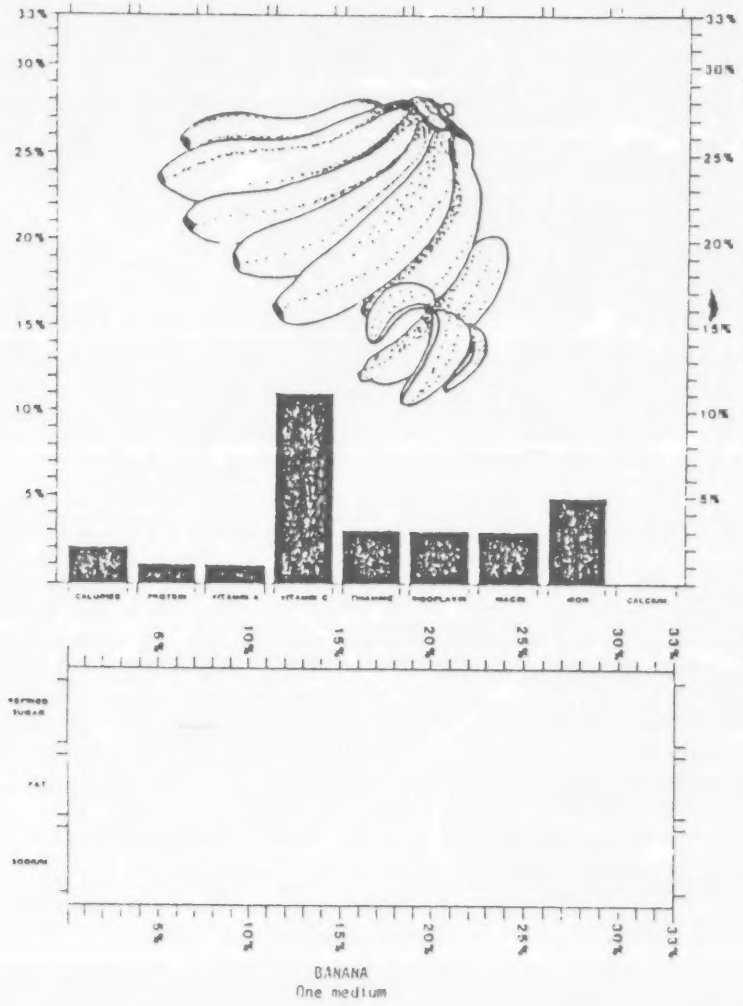
GROW
BEANS
PROTEIN

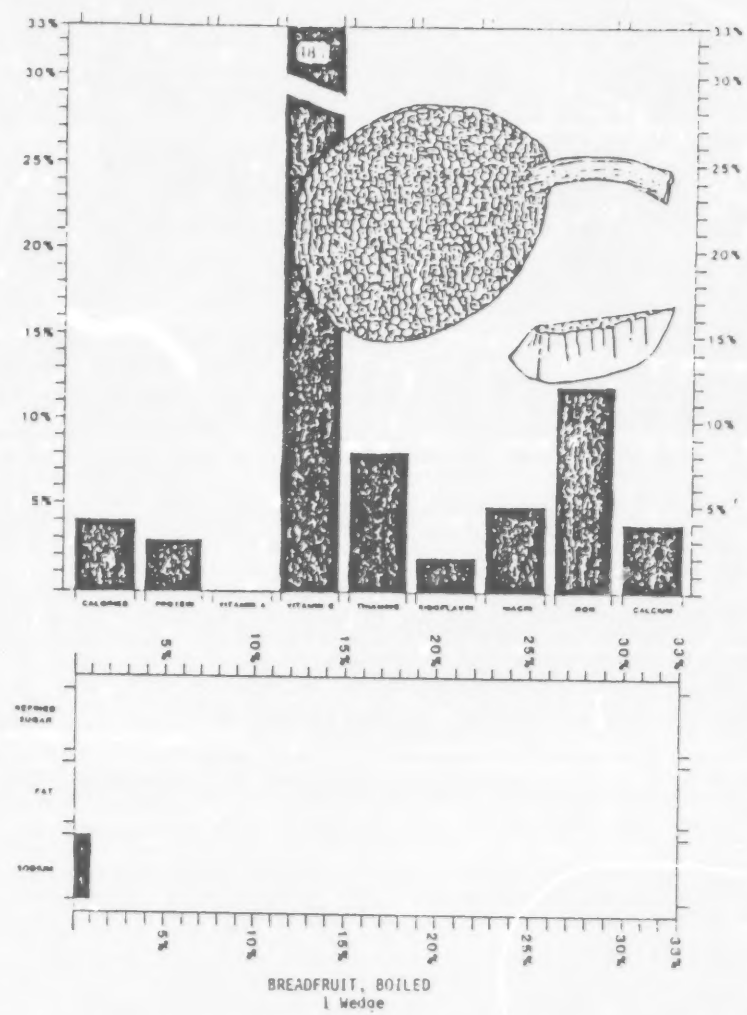
TOFU

FOODS RUMMY FOR BASIC GROW, GLOW AND GO

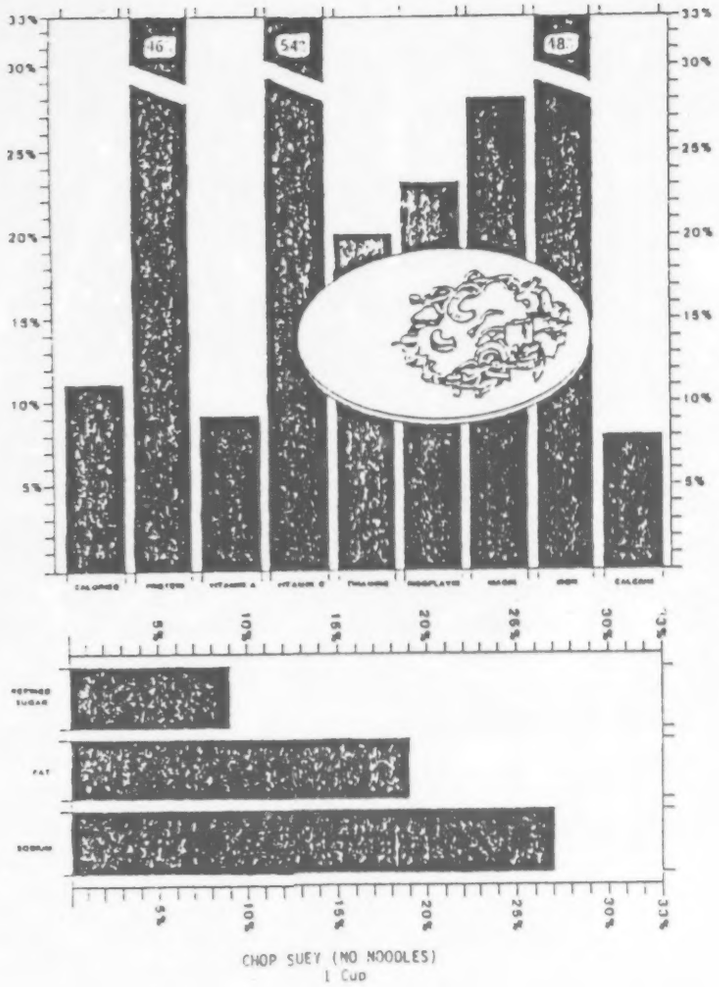
Playing cards
4 of 4

NUTRITIONAL VALUE OF HAWAI'I'S FOOD



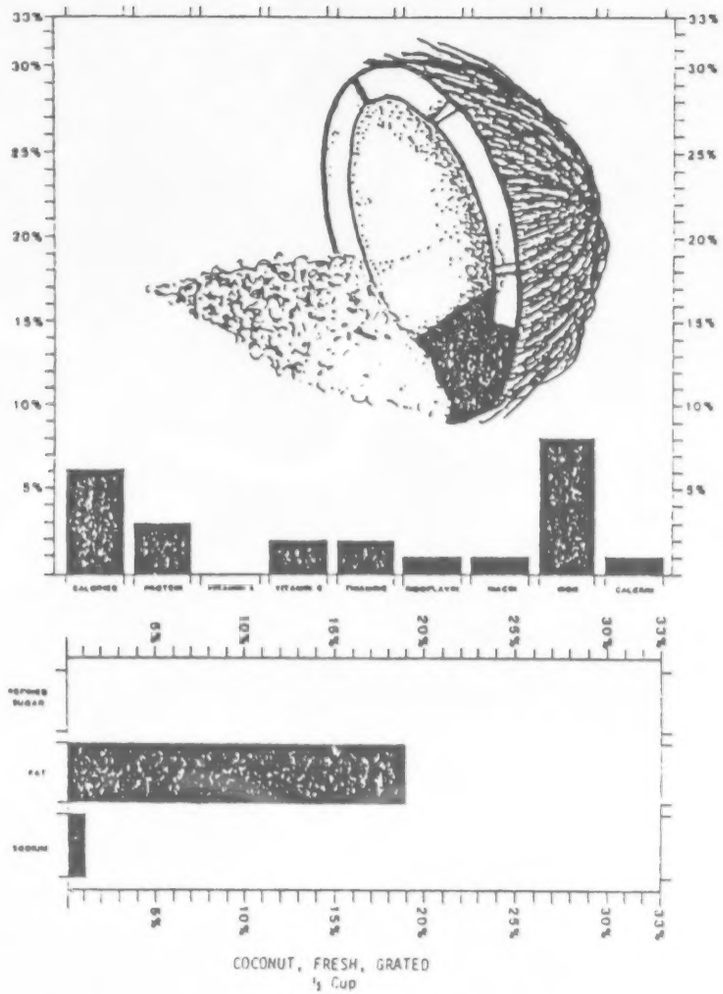




Nutrition Island Style, Nancy Rody and Francis M. Pottenger, University of Hawai'i, Curriculum Research and Development Group, © 1983. Reprinted with permission



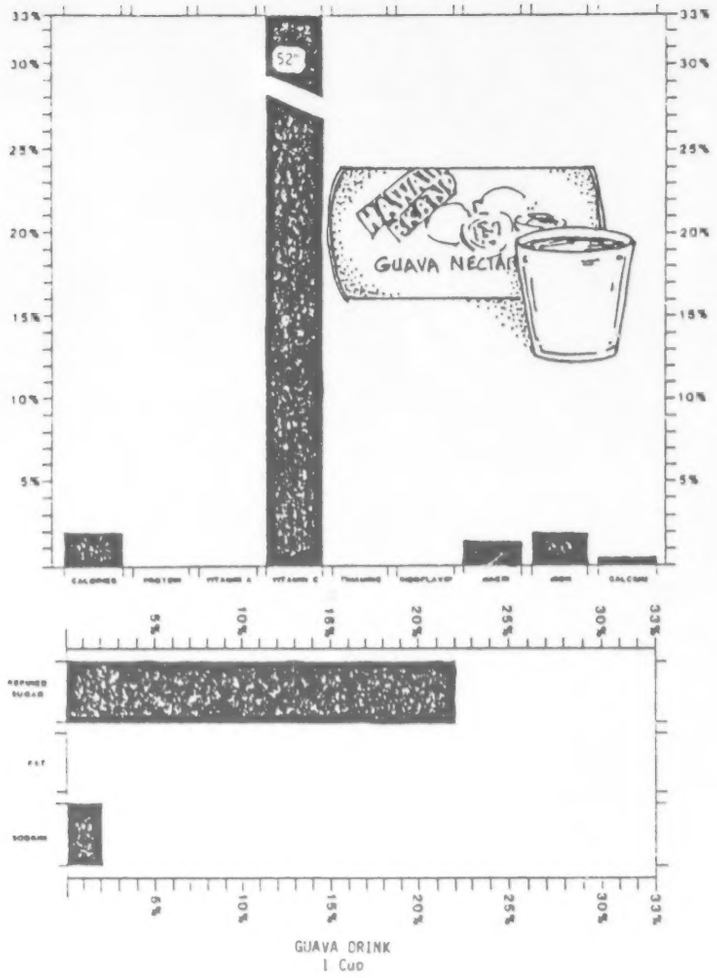

CHOP SUEY (NO NOODLES)
1 Cup

378




COCONUT, FRESH, GRATED
½ Cup

379

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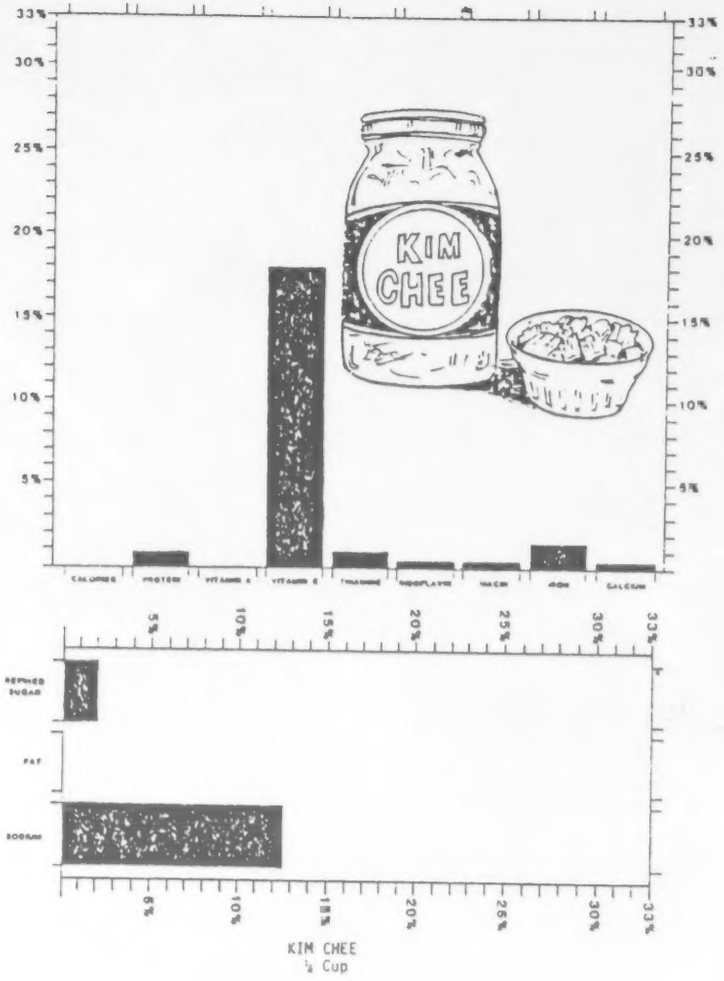


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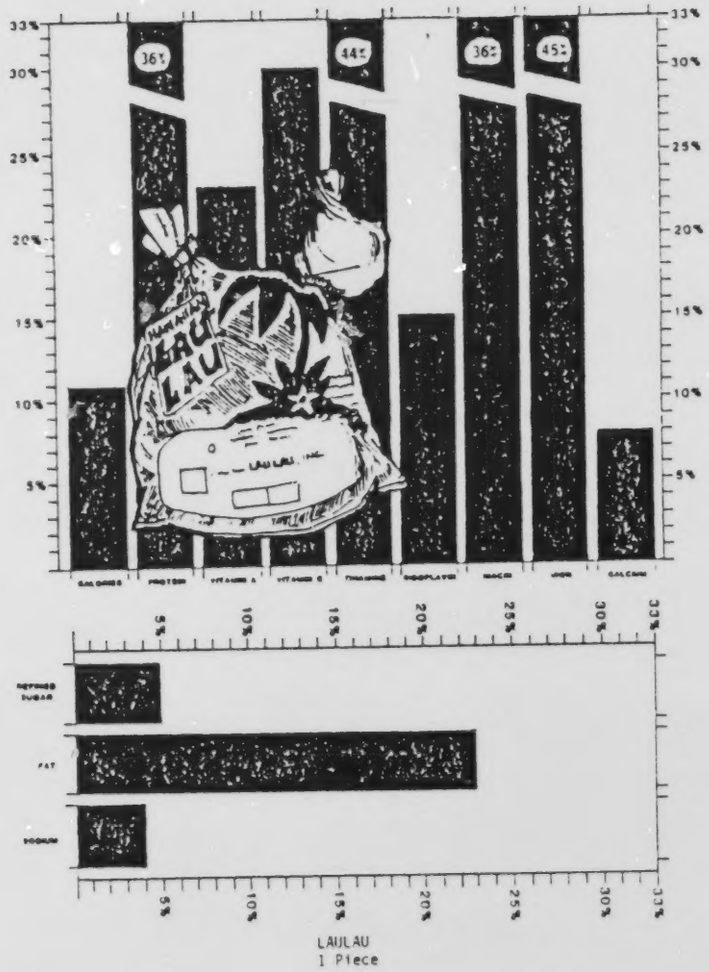


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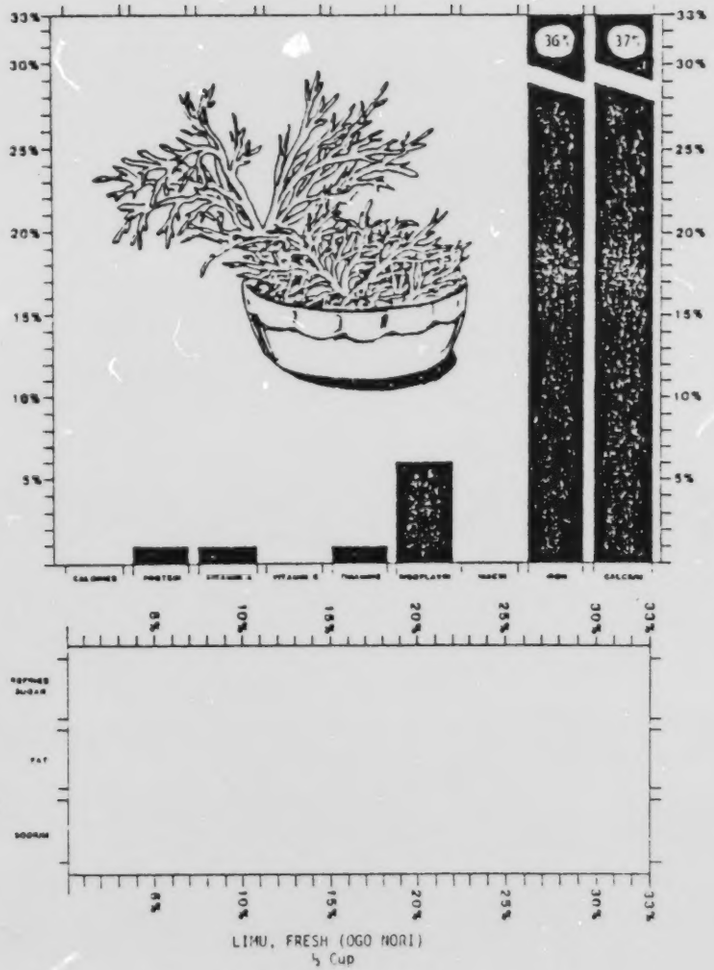


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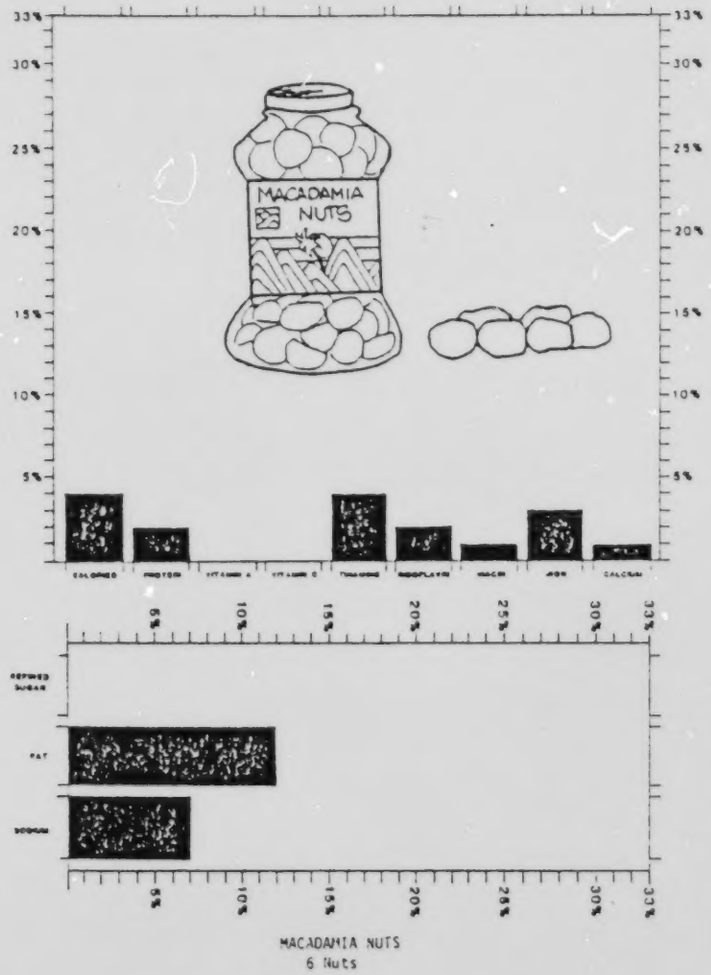
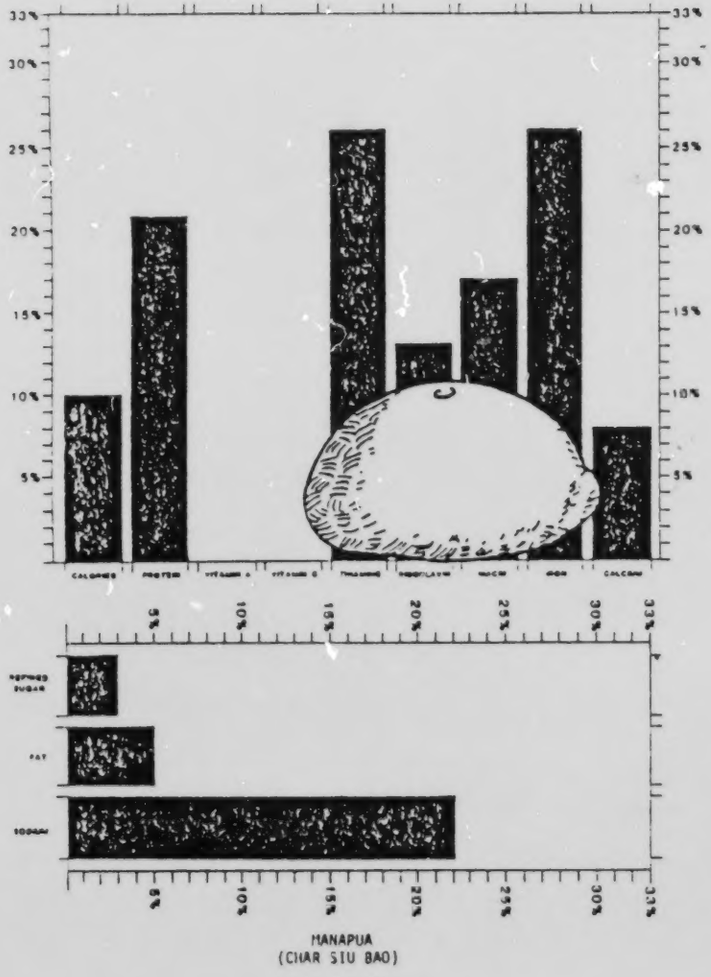


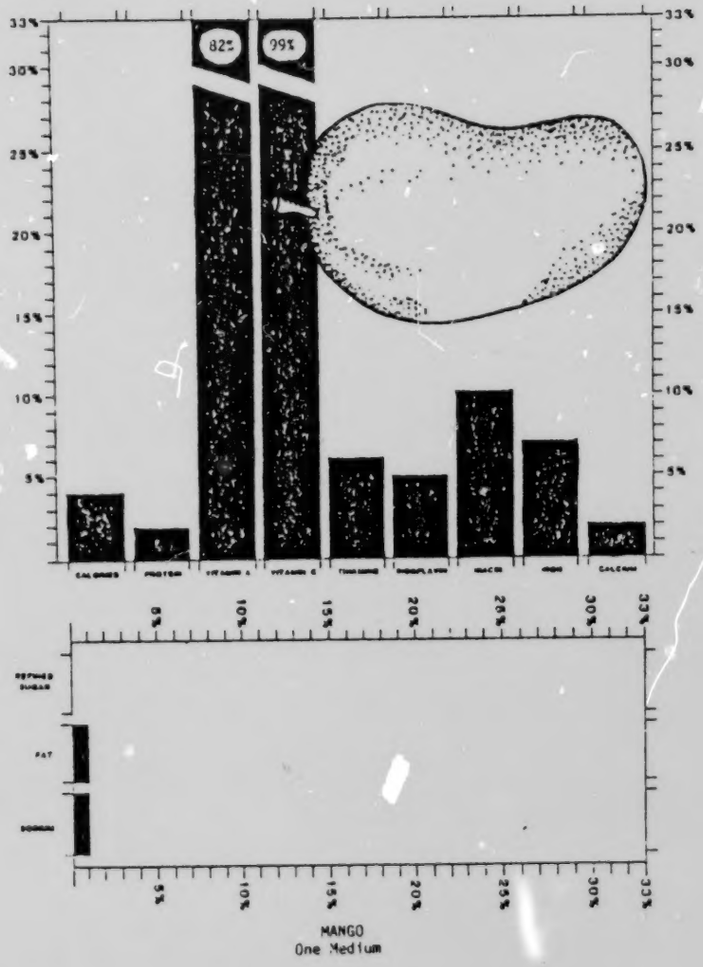

MACADAMIA NUTS
6 Nuts

384

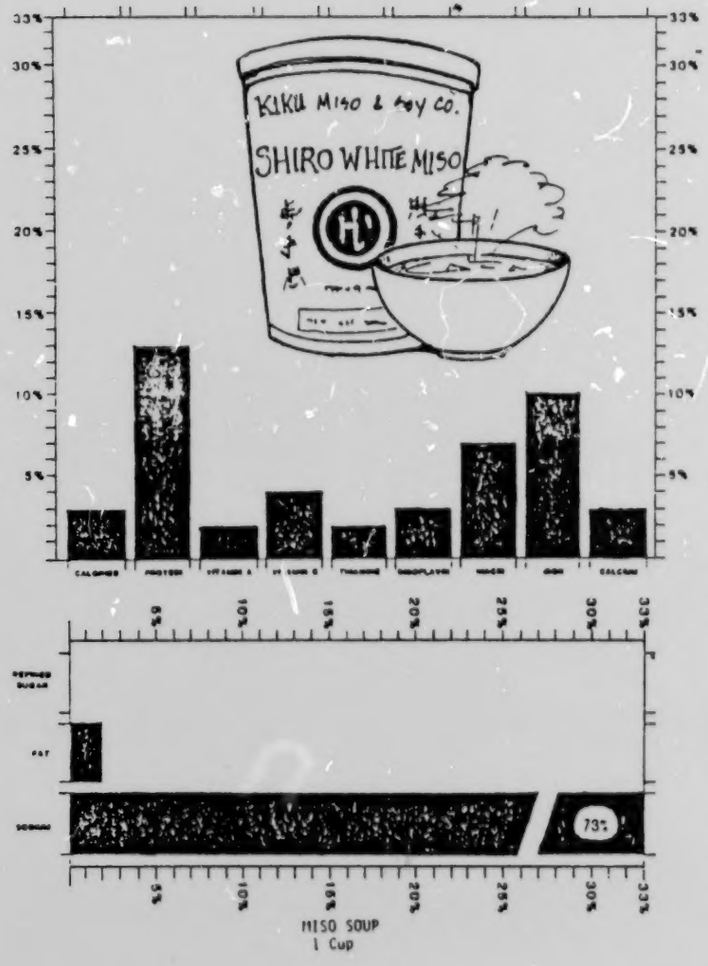



MANAPUA
(CHAR SIU BAO)

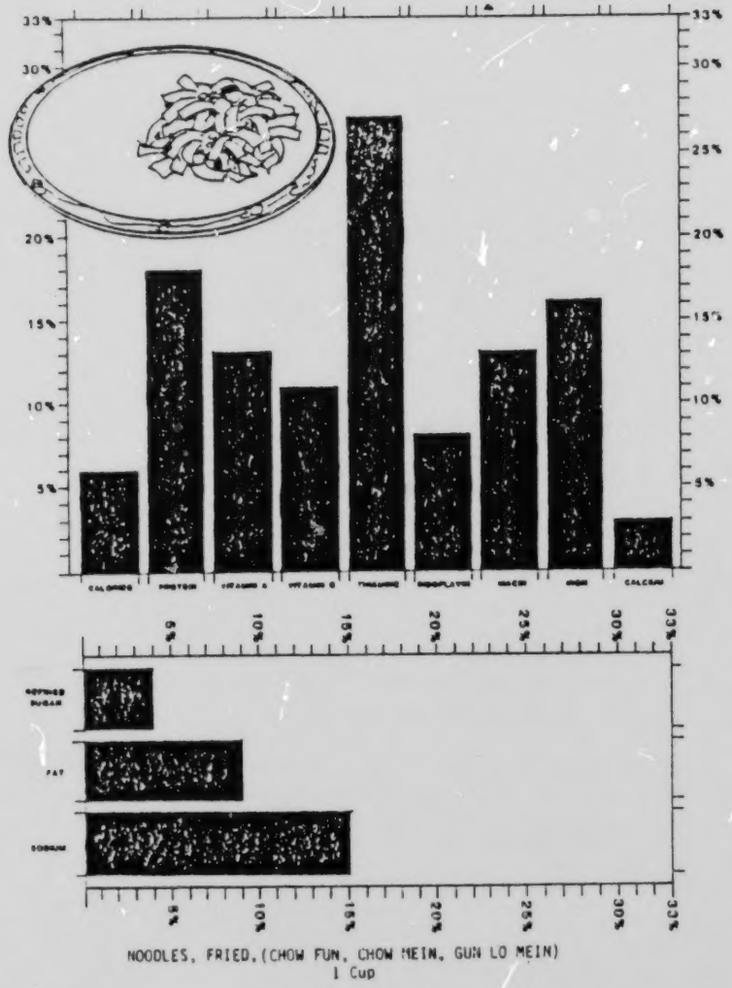
385


82%
99%
MANGO
One Medium

386

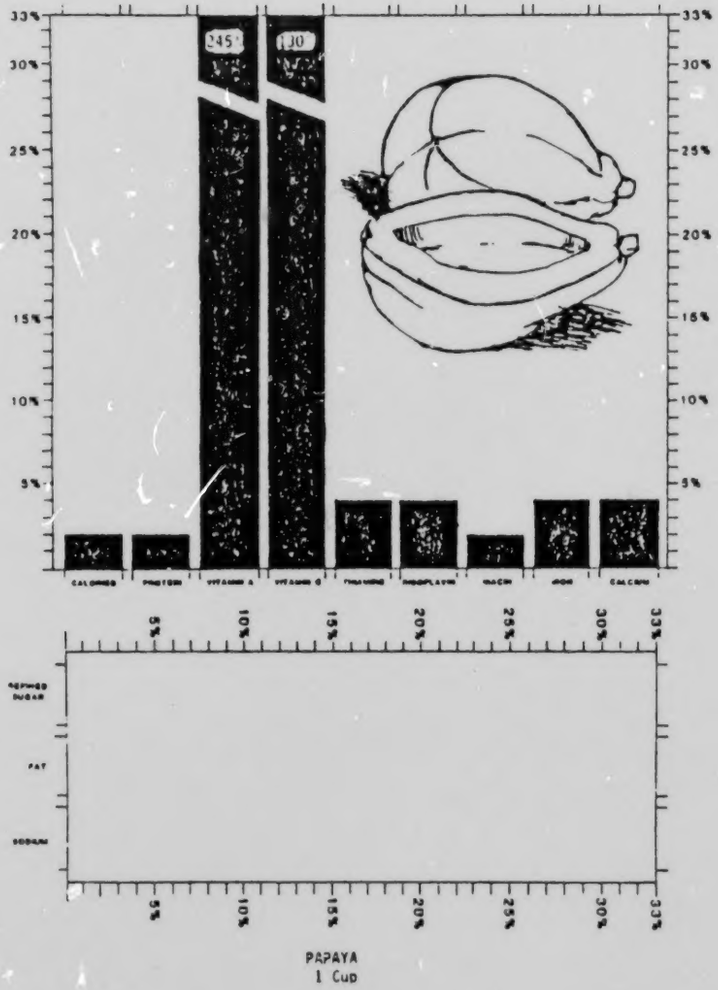

KIKU MISO & SOY CO.
SHIRO WHITE MISO
73%
MISO SOUP
1 Cup

387



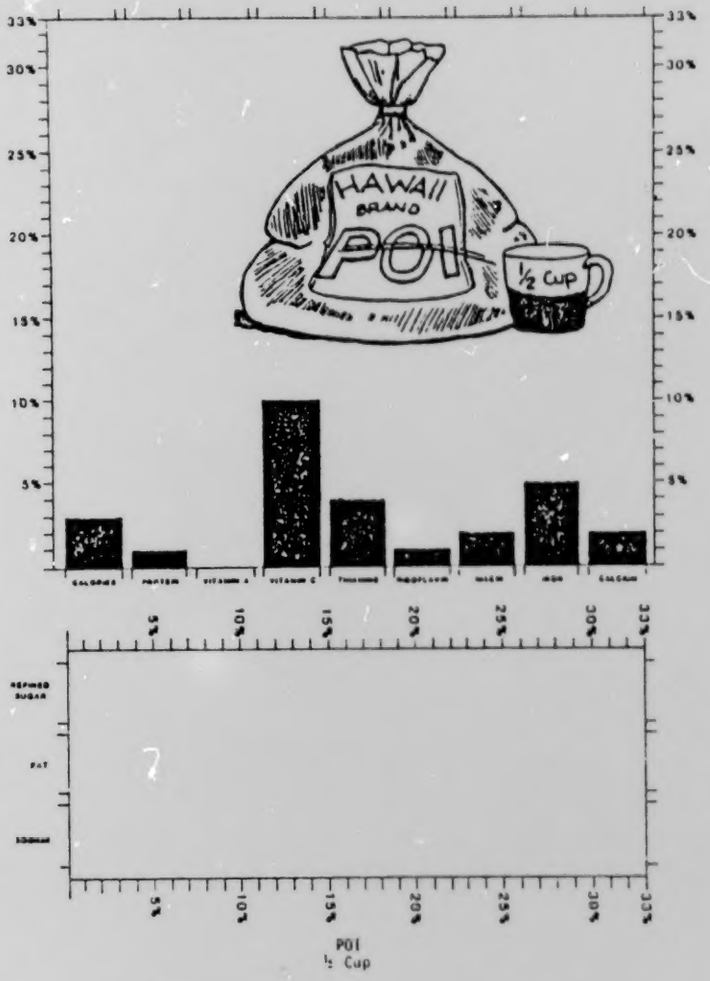

NOODLES, FRIED, (CHOW FUN, CHOW MEIN, GUN LO MEIN)
1 Cup

388



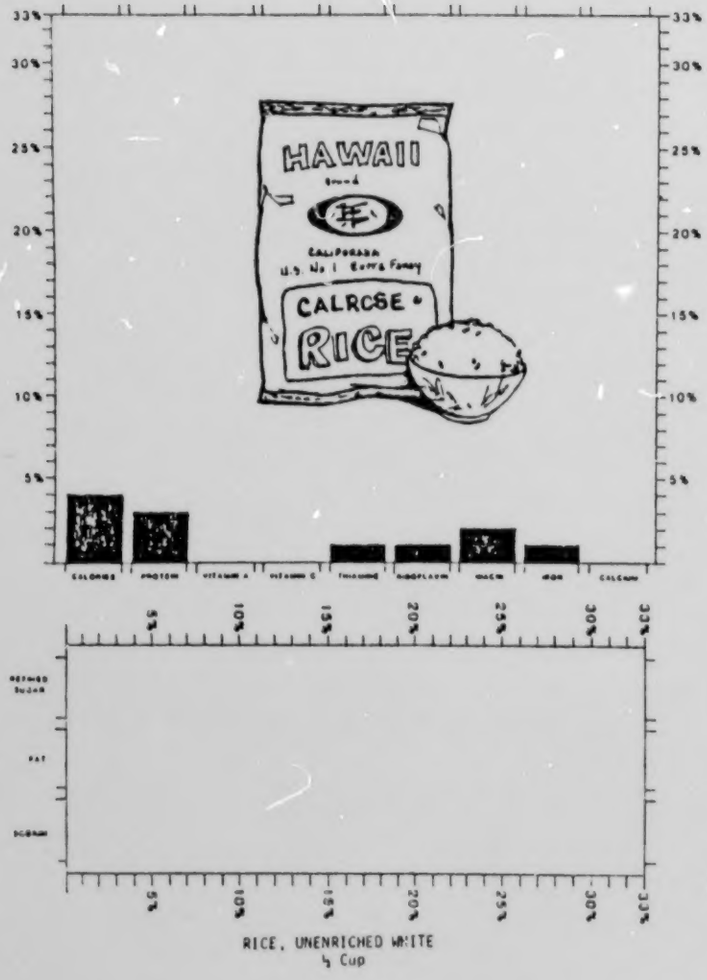

PAPAYA
1 Cup

389



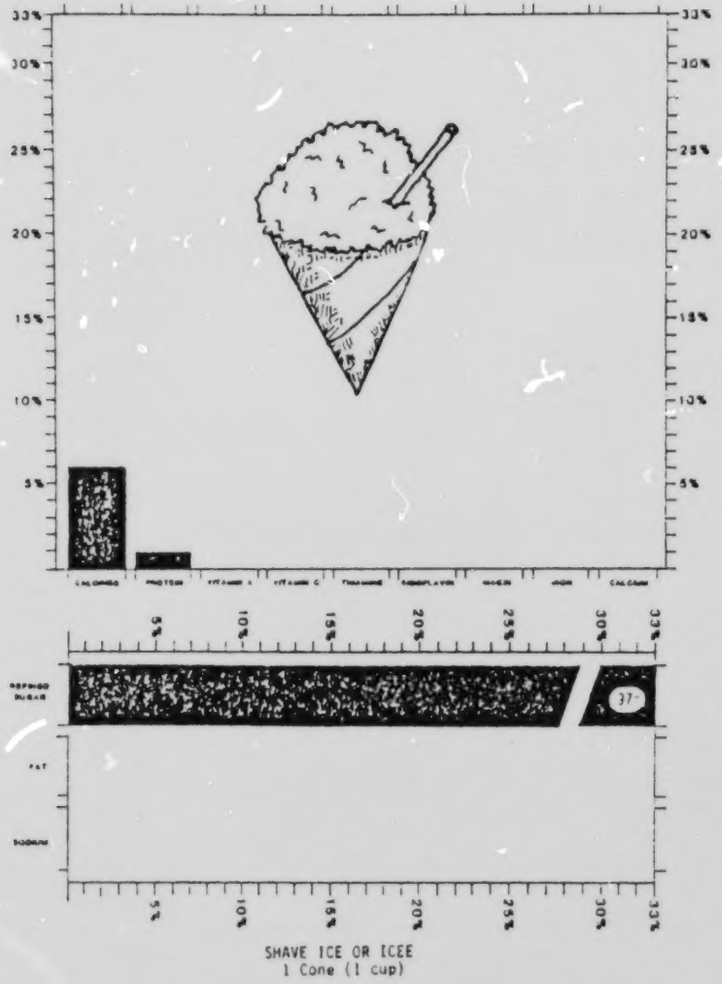

POI
½ Cup

390

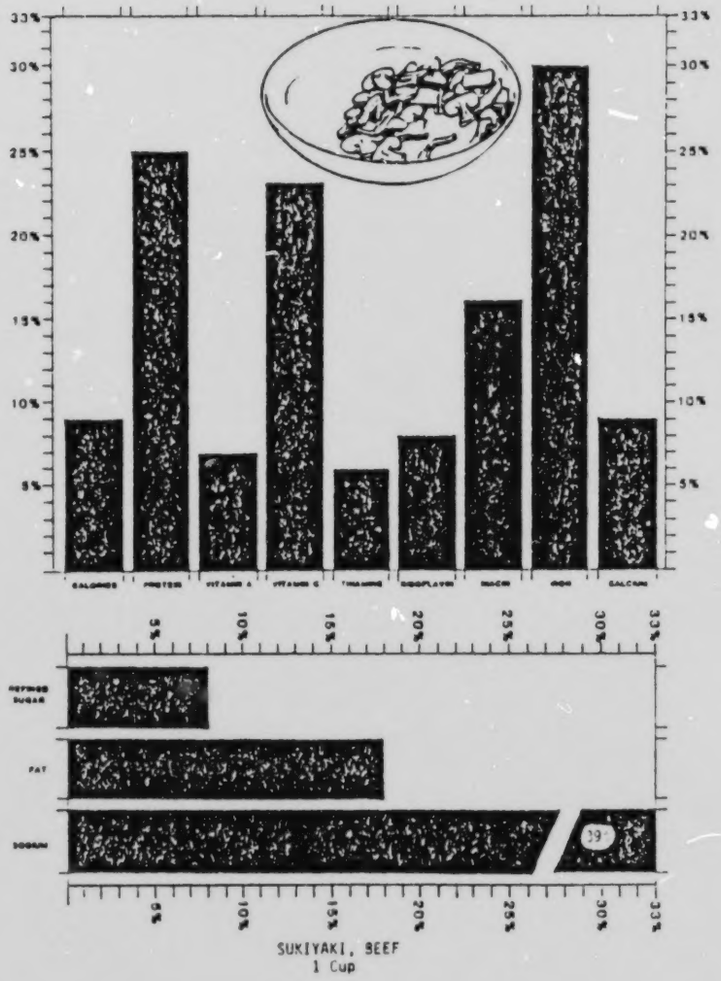



RICE, UNENRICHED WHITE
½ Cup

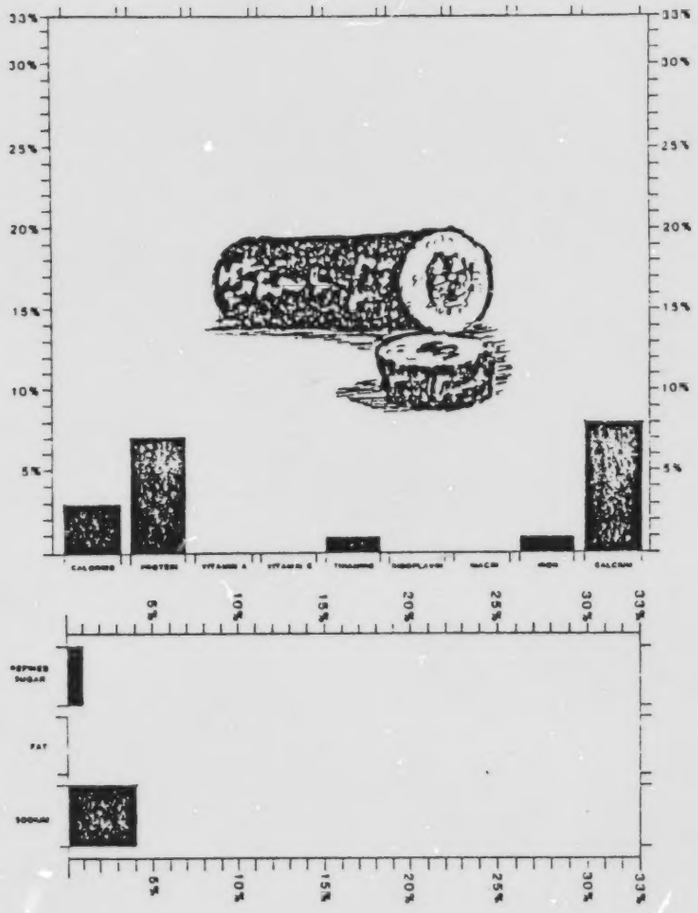
391


33%
30%
25%
20%
15%
10%
5%
37
SHAVE ICE OR ICEE
1 Cone (1 cup)

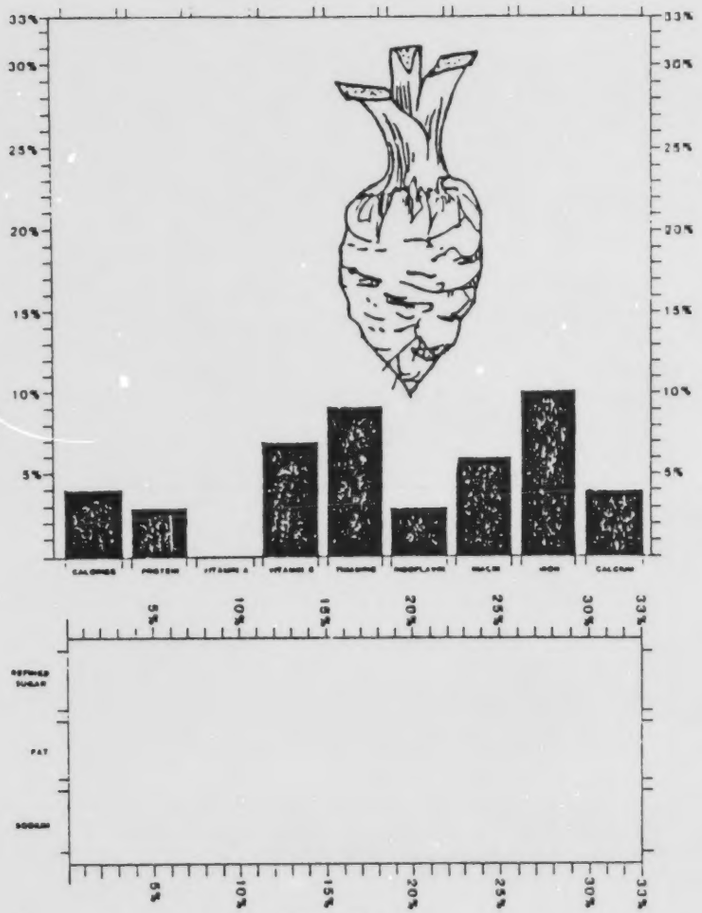
392


33%
30%
25%
20%
15%
10%
5%
39
SUKIYAKI, BEEF
1 Cup

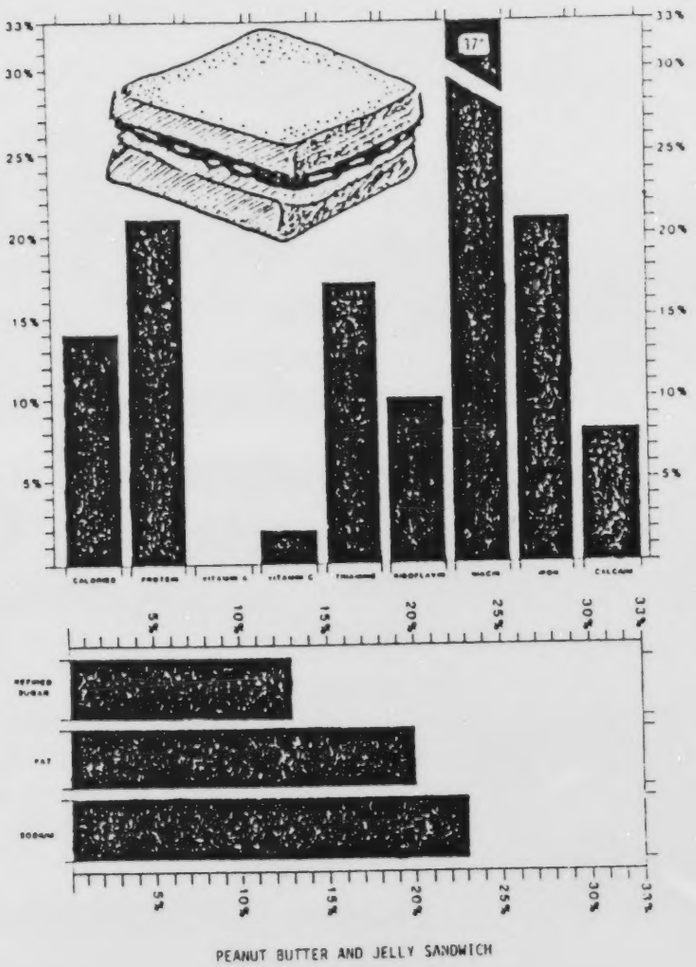
393




SUSHI
1 Average piece

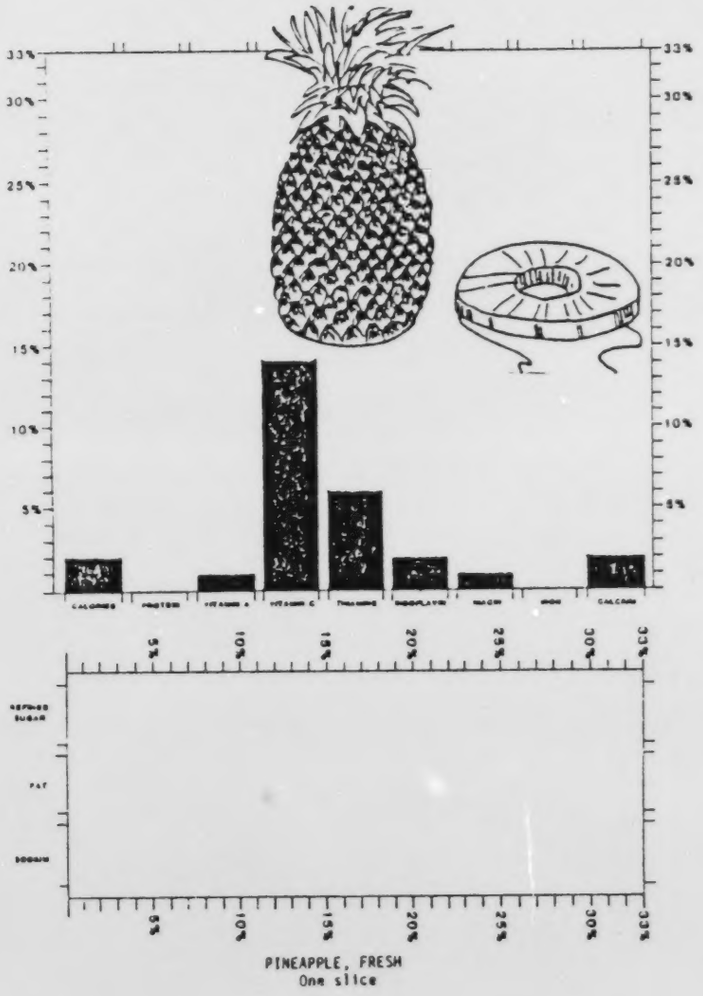



TARO, WHOLE
1 Small



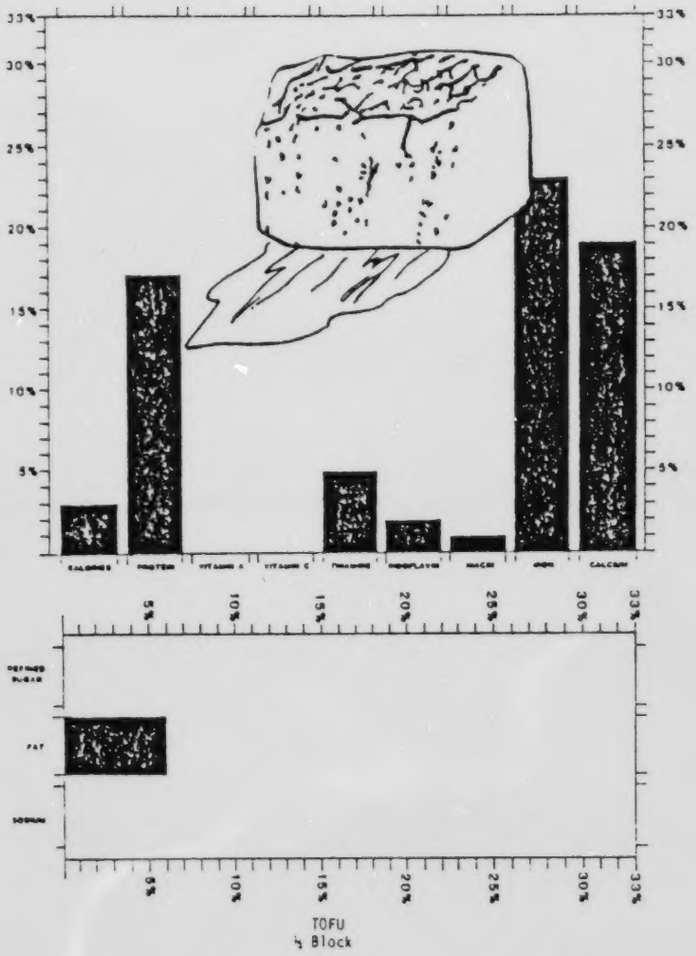
PEANUT BUTTER AND JELLY SANDWICH

396



PINEAPPLE, FRESH
One slice

397




398

399

BASIC FOODS WORKSHEET

Directions: List as many food products as you can under each of the categories.

| | Starch | Fruit | Vegetable | Dairy Products | Meat | Beverage | Sweet |
|---|---|---|---|---|---|---|---|
| EARLY HAWAI'I | | | | | | | |
| TODAY | | | | | | | |

Friday, February 11, 1983 Honolulu Star-Bulletin C-5

Bright Future Forecast

# Aquaculture Parley Held

KAHUKU PRODUCT—These are prawns in tanks of Lowe Aquafarms Inc. —Star-Bulletin Photo by Ken Sakamoto.

By Harry Whitten
*Star-Bulletin Writer*

The 1980s will be the period when aquaculture will be more successful in realizing its potential to help solve the world's food problem, researchers were told Wednesday.

The speaker was John S. Corbin, manager of Hawaii's aquaculture development program, who gave the keynote talk at the first International Biennial Conference on Warm Water Aquaculture-Crustacea, held at Brigham Young University-Hawaii in Laie.

The sessions have 350 people registered from 32 American states and 37 nations.

Corbin said aquaculture had gone through popularity cycles in the United States, being heralded in the 1960s as the wave of the future and undergoing a more realistic analysis in the 1970s.

"Now, as the decade of the '80s begins, and with an additional 20 years of research, development and demonstration or perhaps, we should say maturation, under our collective belts, aquaculture is again receiving a great deal of attention as an environmentally sound, energy efficient, food production alternative in both the developed and developing worlds," he said.

"I believe the signals today indicate that this time around, the effort to realize its much lauded potential will be monumental, better financed, and to a much larger degree, successful."

In describing Hawaii's aquaculture program, he said the state has developed the planning concept of an aquaculture niche, analogous to the ecological niche. This requres examination of the geographic area and identification of potential sites for appropriate types of aquaculture development.

He said there is great diversity and flexibility in aquaculture opportunities; aquaculture can be backyard or involve thousands of acres; it can use a variety of species, can be low or high technology, can be labor-intensive or highly automated.

HE QUOTED statistics to the effect that world aquaculture production in 1980was more than 8.7 million tons, a 42 percent increase over the 1975 total.

He said the United States and Japan account for about 40 percent of total world shrimp and prawn consumption. "Moreover, many fishery biologists believe that most harvested shrimp stocks are now being fished at their maximum sustainable yields and the only way to put more shrimp on the market is through aquaculture," he said.

Such a situation offers opportunity for large-scale commercial aquaculture, he said.

He quoted from a book, "Seafarm: the Story of Aquaculture" by Elizabeth Mann Borgese about aquaculture in the East and the West.

"We perceive Hawaii's role in world aquaculture development as being the place where the meeting or merger of Eastern practicability and Western technology occurs for the benefit of both," he said.

Conference delegates also made a bus tour of the BYU-Hawaii prawn farm, the Lowe Aquafarms Inc. ponds, the hatchery facilities of Amorient Aquaculture International, and the Marine Culture Enterprises, where research is being conducted on the intensive culture of shrimp in controlled conditions.

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May 29, 1984.

# Estate Blamed for Death of a Dream

## State Threatens Foreclosure of 10-Year-Old Na Mahiai Green Valley Project

By Stu Glauberman
*Star-Bulletin Writer*

Peter Lua's dream of teaching farming and survival skills in Green Valley is about to die just when his bananas and papayas are bursting with life.

Lua blames the demise of his dream on his landlord, the Bishop Estate.

He says the giant trust backed him when he organized the Na Mahiai Green Valley project 10 years ago, but now wants him out when the farm is beginning to show the results of his hard work.

"If this should fail, it's because they want me to fail," Lua said last week.

For their part, Bishop Estate officials downtown say they've been patient with Lua, but he hasn't followed through with his plans and promises. They say he has been in default on his lease rent, his mortgage payments and his commitment to run Na Mahiai Farm as an educational program.

TEN YEARS AGO, Lua and a hui of other part-time farmers were convinced that they could turn a rocky part of Punaluu Valley into a self-sustaining truck farm.

The Na Mahiai project they organized was not meant to be a big money maker. It was to be an educational project that would demonstrate that young Hawaiians could improve the land — and themselves — without depending on others.

The farmers planned to work with school drop-outs and problem kids, especially Hawaiians who wanted to get the feel of the land.

The project began in mid-1975 when the Bishop Estate agreed to let the farmers' hui use 145 acres at Waiono, also called Green Valley.

The kiawe scrub was cleared, at first by hand, and later with the help of a bulldozer. The work began even before a final agreement was signed on a 41-year lease at a very low rent, with further concessions for years with poor crops.

The state Department of Agriculture gave Lua and his partners a $43,000 agricultural loan.

Kahuku High School, Liliuokalani Trust and the Kamehameha Schools extension service agreed to support the project and provide students for work-study programs at the farm.

IN THE NINE years since those hope-filled days, the educational component of the Na Mahiai project has floundered, though in the last few years, the farm has flourished.

Lua is the only one of the hui members left on the farm. What was intended as a self-help program for Hawaiians has become a one-man operation.

Lua says his four partners — including his first wife — abandoned the project because farm-

Turn to Page A-3, Col. 1

**HOLDING ON TO A DREAM**—After 10 years of work, Peter Lua's Na Mahiai Green Valley project is beginning to show results. The Bishop Estate is increasing the rent on the Punaluu property because it says Lua has failed to meet the terms of his lease. —Star-Bulletin Photo by Terry Luke.

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Continued from Page One

ing proved to be too much for them.

"They didn't realize they would be putting in so much 'love time' (hours without pay)," he says wistfully.

The farm's first crops — vegetables — were washed out by heavy rains. An expensive piece of farm equipment was stolen from the farm.

Then in 1979, the flow of students from Kahuku High and the other referral agencies dried up for a variety of reasons, some of them still unclear.

At one point, the project's bank account was down to $35.

Unable to make his mortgage payments, Lua first proposed subdividing the farm and then tried to bring in a 49-percent partner. Neither reorganization, aimed at making the farm a commercial venture, pushed through.

To make things worse, the farm's long-term banana and papaya crops were wiped out by Hurricane Iwa.

TODAY, DESPITE the shortage of workers, the farm is producing well. Thirty acres are in ti leaves, seven acres in papayas, and 45 acres in bananas. That adds up to 82 acres, which is something Lua likes to crow about because the Bishop Estate considers only 65 acres farmable.

The value of the farm's produce should top $160,000 next year, he said.

That is, if there is another year.

The immediate threat comes from the state, which is foreclosing on the loan it made to the hui.

Lua acknowledges that he is behind in his loan payments, but says he can repay the state because the farm is beginning to make money.

He claims state loan officials were reluctant to foreclose on a farm that is showing results and only did so under pressure from the Bishop Estate.

State agricultural loan officials won't comment. But the state attorney assigned to the case says that Lua's problems with the Bishop Estate were a big factor in the decision to foreclose.

Deputy attorney general Peter Uehara explained that if the Bishop Estate terminates the lease with Lua, the state would be left without collateral to collect on its loan.

HOWEVER, THE loan payments are only a small part of Lua's problem.

In November 1982, the Bishop Estate sent him a letter proposing a rent increase from $3,600 a year to $13,080 a year for the next 14 years.

The estate said the adjustment was in order because Lua had failed to remedy certain lease violations. Primary among them was that the farm was not serving as a training program.

"The Bishop Estate is saying I'm not running an educational program," Lua said. "But I've been running an educational program year after year. We've worked with 145 high school students, so far," he said thumbing through his files in a makeshift office.

"Right now, we're working with adults in the community."

Last week, as an appraiser hired by the estate was surveying the farm, Lua was working the fields with two student helpers — Ani Samione and Neai Tongia, a polio victim.

"Our main thing we teach up here is survival," he said.

Lua thinks the estate is behind the difficulty he has had getting students during the past five years.

BISHOP ESTATE land manager Doyle Davis argues that the trustees have been extremely patient with Lua, who has not been forthcoming about the problems the farm and its education project have faced.

"Generally, the program has been dead for five years and I think we've been fairly liberal in letting them have time to get the program back on track," Davis said.

"It may be his impression that we have thrown up roadblocks. All we want, quite honestly, is for him to hold up his end of the deal."

Davis denies that the estate is trying to terminate Lua's lease. He says the estate merely is invoking its right to reappraise the land and set a higher rent. "It's more or less a tool that coerces the tenant into complying with the lease," he said.

Lua, who also is having an appraisal done, believes the Bishop Estate wants him out of Green Valley. He thinks he knows why.

Lua says the estate has agreed to lease 3,140 acres across Punaluu Stream from his farm to Mr. and Mrs. John D. Holt, who plan to build a garden and subdivide part of the valley into five-acre agricultural lots.

"The key to why they want me out is that I'm sitting where the water is. The water that feeds their property crosses mine," Lua said.

Davis says Lua's all wet.

"The Holts have nothing to do with it," Davis said.

Lua also claims that Fred Trotter, a trustee of the Campbell Estate, has been trying to reorganize the Punaluu Water Users Association in an effort to oust him as vice president.

Trotter, who is helping the Holts with agricultural aspects of their project, said he has had informal discussions with the water users in the valley

Grade 3, Appendix Unit II-DD

# Diversified agriculture: myths & reality

By PETER ROSEGG
*Advertiser Editorial Writer*

Is diversified agriculture a major answer to questions in Hawaii's future? Many people look to it to provide many jobs, alternate lifestyles and self-sufficiency for these islands. But spending some time "on the farms," at least here on Oahu, may challenge some of these notions.

This happened recently in tours to Waianae, Waimanalo and Kahuku sponsored by the Hawaii Farm Bureau Federation and the State Department of Planning and Economic Development.

For some of us who took the tours it seemed that diversified agriculture (which in Hawaii means everything cultivated by human hands but sugar and pineapple) shows more diversity than agriculture. Given the difficulties with making generalizations, here are some observations.

**CONSIDER JOBS**, first of all. There are positive trends such as a reported increase in the number of "young farmers" working full time in agriculture. They have lowered the average age of farmers below a still elderly 58.

But overall jobs in all kinds of agriculture have declined from 19,000 in 1960 to 15,000 in 1977, mostly due to cutbacks on the plantations. Jobs in diversified ag (including self-employed farmers and their families) increased by only 1,000 to a total of 8,000 in that period.

And it does not seem reasonable to look for many new jobs on the variety of ag establishments in Hawaii that range from large, Neighbor-Island-type spreads in Kahuku to little part-time plots in Waiahole-Waikane to small, but intensely commercial, family fields behind Hawaii Kai.

For example, 450 acres of corn planted in Kahuku require only four full-time workers. A more labor intensive fruit-tree farm in the same area employs about 40 people for 600 acres zoned agriculture (though only about 400 are planted). And experiments are under way there to grow "square" trees that will make it possible to employ picking machines rather than people.

An aquaculture farm which when finished will cover some 100 acres and supply perhaps one-third of the prawns consumed in Hawaii is expected to employ a dozen people. And many small farms and nurseries in places like Waimanalo, while they may require more people per acre, are worked by relatives (often elderly) who labor out of family obligation or for pleasure and are paid accordingly.

**WHICH BRINGS UP** the matter of lifestyle. City people hear "diversified agriculture" and what may come to mind is a scene out of a Norman Rockwell painting — the hardy farmer in blue coveralls (one strap hanging open) before the tidy farmhouse, pitchfork in hand, watching the cows amble into the barn for milking.

There are some "lifestyle" farms, to be sure, but likely as not the head of the household has a full-time job elsewhere and the wife, kids or aunties milk the cows, tend the vegetables and collect the eggs. Some just produce for family, friends and casual sales, but others are going commercial concerns like the family-owned Waianae piggery run by the wife (a native of England despite her Korean surname) while the husband who works at the Navy yard helps only evenings and weekends.

And what kind of "new" jobs are being created? Those four corn field employees in Kahuku resemble heavy-equipment operators (with the extra skills of chemists, electricians and plumbers) more than traditional "farmers." They likely keep fairly business-like hours and may live as easily in Kailua or Makiki as near the land.

**WORKERS ON THE** fruit-tree farm do more traditional farm labor but it is the tradition of the plantation — rugged, stoop labor that does not pay well. The owner there complains that young people don't find such farming glamorous; he pays the same starting wage as the nearby Kuilima Hyatt, he says, and yet they prefer jobs there.

From the milking machines that the cows go to almost unattended at a Waianae dairy; to an egg farm and processing plant in Waimanalo that has the most modern automated egg inspecting, classifying, weighing and packing machinery available in the U.S.; to a Kahuku oyster farm with a space-age appearance looking for ways to mechanize the tedious lifting of bins and sorting of oysters — the dominant impression is one of investment capital going to labor-efficient automation.

So the new jobs that result from diversified agriculture are likely not to be truly "farming" jobs so much as in processing, transportation and marketing. They will require technical skills accordingly. And just how many new jobs will be created all told in relation to the invested capital is hard to say.

**THEN THERE IS** the riddle of self-sufficiency. With acres and acres of farm land, year-around sunshine and an everything-grows-quickly lushness, it is perplexing that we should be so dependent on imported fruits and vegetables as well as meat and fish. For a solution many people look yearningly to diversified ag.

But many diversified products that seem to have the greatest potential here are not foods at all (like the ornamental trees and shrubs or the dendrobium orchids that flourish in Waimanalo) or they are not staples but exotic or luxury foods (like macadamia nuts, oysters, bananas and papayas).

And among the staple foods, although the market supply of vegetables grown fresh on truck farms in Hawaii has increased that growth has not kept pace with in-shipments, as for instance for potatoes. Specialized local products like Manoa lettuce seem to flourish. Still, while the locally grown share of the lettuce market has increased the total market has too, requiring more imported lettuce than ever before.

**FOR EVEN WITH** increasing shipping costs the competition from California, where huge economies of scale are possible, is fierce. For example, Hawaii is nearly self-sufficient in egg production (importing only 4.7 per cent of consumption in 1977) but processors here dread the times when excess production in California leads to dumping on the local market — and resulting price drops.

(In a switch on the dumping theme, however, the co-op of watercress farmers led by the Sumida Farm below Pearlridge Shopping Center sometimes sends its excess production to California.)

(Cont.)

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★★ The Sunday Star-Bulletin & Advertiser Honolulu, April 22, 1979 G-3

**In the shadow of Pearl Ridge Shopping Center, workers tend thriving watercress farm.**

To take an example slightly more removed from the consumer, the corn grown in Kahuku goes to feed milk cattle and seems to be fairly competitive with other feeds. At a cattle feedlot in Ewa the local molasses and pineapple bran feed is used despite the fact that it costs $20 a ton more than something which could be imported. And 70 percent of the beef consumed here is shipped in. It is the price of that beef, not local production costs, that sets the market price here.

**SO IT DOES NOT** seem that we can look to diversified agriculture, at least on Oahu, to go very far toward solving the problem of self-sufficiency, if indeed that is a problem we can and want to solve.

The products most likely to succeed here (beyond the staples which will fill only a part of Hawaii's total consumption) are the specialized items like macadmaia nuts, watercress, bananas, anthuriums, orchids, oysters, prawns and the like.

These may be products unique to Hawaii within the U.S. (like coffee or papayas) or fill a particular local demand (the dendrobium orchards often adorn the luau lunch plates of airline passengers). And often they will best be marketed through a cooperative like Watercress of Hawaii or the recently activated Pacific Banana Growers Cooperative which has as its goal driving the imported Chiquita banana brand out of Hawaii.

**SO WHAT IS NEEDED** is a realistic appreciation of what diversified agriculture can and can not likely do for Hawaii. It can, for one thing, help protect the open vistas which make these islands an attractive place to live and visit.

It may supply a certain number of jobs "on the farm" — increasingly skilled or semi-skilled roles that require schooling rather than unskilled labor. And there may be secondary jobs in processing and marketing that result from diversified ag.

With a continued government committment to open, rural space, some who now enjoy family small farming may continue to do so, but the chances of many more people taking up that lifestyle seem limited, at least on Oahu, considering the price of land and the pressures of urbanization.

And though chances for self-sufficiency at the present standard of living (and eating) seem poor, diversified ag could contribute some exports and reduce the quantities of food that must be imported. But this will happen only if problems of transportation and marketing are solved with dependable supplies of attractive and useful products made available to willing markets on the Mainland.

**PROSPECTS FOR** diversified ag, if they do not seem very bright at the moment, don't look all that bleak either. Government leaders at least pay lip service to its development and sometimes try to turn action into words. The idea seems to have popular support.

And in 1977, diversified ag, according to the state agriculture department, "reached a record high $117.8 million in cash receipts to farmers for a 7 percent gain over the previous year."

November 1, 1981

# FROM OUT OF THE MUD ...

By Susan Yim

You can't find Harry and Annie Ung's farm if all you've got is their address. There's no street sign marking the dirt lane that leads to the little green house their family has lived in for almost 80 years.

If you haven't been to the Ungs before, just ask any oldtimer in Haleiwa for directions. It's difficult to say who was there first, Haleiwa or the Ungs.

Ah Tuck Ung set down roots in Haleiwa at the turn of the century. He came to Hawaii from China, landed on Kauai to work on sugar and rice plantations before moving to Oahu, where he leased land in Haleiwa and planted rice.

He and his wife raised 10 children in the one-bedroom house that came with the land that is still leased from a Hawaiian family. The first child born was Annie and Harry was the fifth, and it's these two who have ended up living pretty much as their parents did.

During World War II, the Ungs switched to electricity but they waited until the '60s for running water. Annie Ung, who is in her mid-60s, still prefers washing clothes by hand although she owns a washing machine. "Sometimes I put the blanket in the bathtub, fill it up with soap and water and just step on it with my feet."

Extensions have been added on to the original house in recent years including a bathroom and a patio with refrigerator and table and chairs, where 60-year-old Harry entertains his beer-drinking friends.

A vacuum cleaner is stored in a corner because Annie prefers to use a broom and mop when she cleans house. The house is spic and span and has a musty beachhouse smell, a combination of mosquito punks, weathered wood and ocean. Haleiwa Beach is a couple of blocks away but the remarkable view is from the Ungs' porch—the Waianae Range rising out of acres of lotus paddies.

Ah Tuck Ung raised rice until 1939 when he switched to lotus root, a vegetable with the consistency of a radish that Asians use as a supplement in their diets. They stew it, pickle it, mix it up with pork and other vegetables chop-suey style.

A spring provides the fresh water essential for growing rice and lotus root. Rice demanded long hours; "too much work," says Harry, "stay out sunrise, sunset, chasing birds. No one wants to chase birds rain or shine."

Harry, Annie and their brothers and sisters grew up chasing away mud hens that ate the young rice shoots, pulling weeds, harvesting the rice alongside their parents. Then their father switched to lotus root, it cut down on some of the work, but not much.

During the early stages of growth, mud hens are as much a nuisance as the crayfish, which eat the young lotus shoots. The root of the lotus plant takes a year to grow and the crop has to be harvested by hand.

The tubular root grows in the mud; the graceful green plant with a large, round green leaf that looks like the leaf of a water lily grows above. The root, with from four to six nodules the size of baking potatoes, can be up to 4 feet in length and 3 inches in diameter. Lotus root slices look like flowers with petal-shaped holes.

During the spring and summer of the plant's life, the large green leaf flutters in tradewinds. But when fall and harvest time come, the leaves turn brown and wither and Ung and the laborers he contracts spend a month digging up his crop of 2,000 pounds of roots.

"That's how we work, that's farmers," says Harry, who is one of five or six commercial lotus-root growers on the Island. "Rain or shine, we don't take off" during harvest. If the root isn't dug up at the right time, it will rot.

There's a trick to harvesting the long, pale-skinned root. You've got to stand thigh-deep in black mud and dig with your hands, being careful not to break the root, if it's broken, mud will oooze into the hollows in the root.

An average-size root weighs about 3 to 4 pounds, and Ung sells them to wholesalers for $1.10 a pound. The lotus root sells for about $2.29 a pound at local markets.

The annual crop provides enough money for the Ungs to live on, supplemented by Harry's pension. Their father died in 1963 at the age of 80—or 92, Annie says that old documents and letters indicate her father was three years older than the age he gave officials when he came to Hawaii from China. Harry, who was a clothing inspector for the Army until he retired seven years ago, and Annie decided to keep the farm.

They still lease the land from the same family that leased it to their parents, but the farm is smaller than it was when their father was in his prime.

Harry also raises rabbits "to eat," says Annie, the cook in the family. "He likes it fried." In the backyard pen are 50 ducks whose eggs are salted Chinese style and sold to friends. And a cage of pigeons—"Just pets," says Annie. There's also a little patch of Chinese taro and some ung choy, or Chinese spinach.

It is a simple life, a real country life that still survives in the part of Haleiwa that borders Waialua.

"We didn't want to give up this land," explained Harry. "Even though we lease, the lease is very cheap. If we make money, we make. We lose, lose. Just like gambling. Some years we make good, certain years we have a good crop."

"That's a beautiful one," says Annie, who walked over to see a root her brother had harvested.

She hasn't always lived on the family farm. After her mother died, she helped raise her younger brothers and sisters, but once they were grown she got a job in town tending house for a well-to-do family. She came back to take care of her father in the '50s, when he was crippled by illness.

After he died she could have gone back to work for the family in town, but decided to stay on the farm. "Dad had quite a big place. It's hard to give it up," she says, trying to explain why, what it means to have roots.

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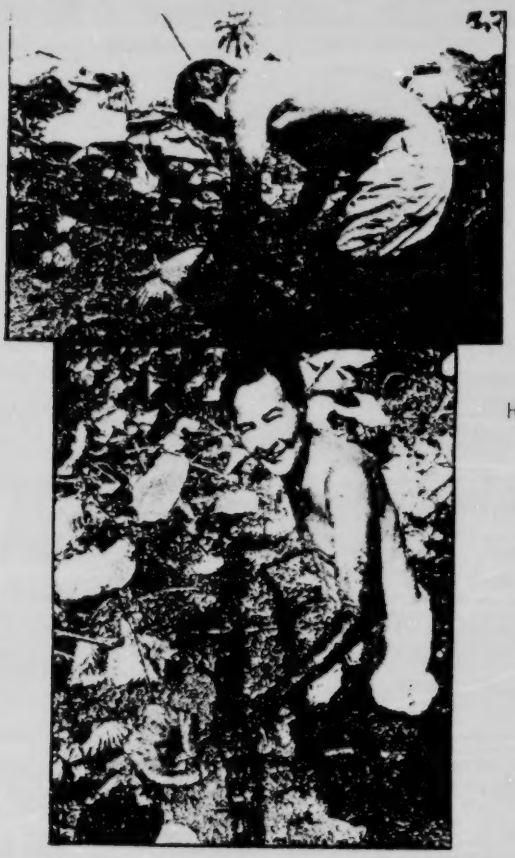
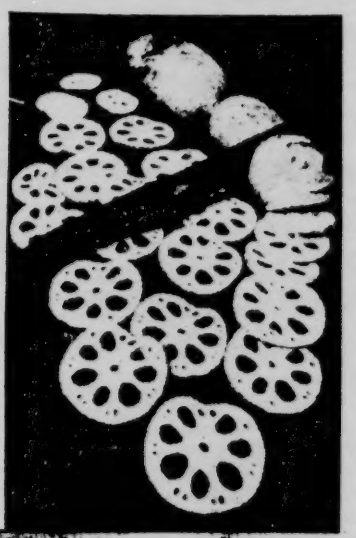
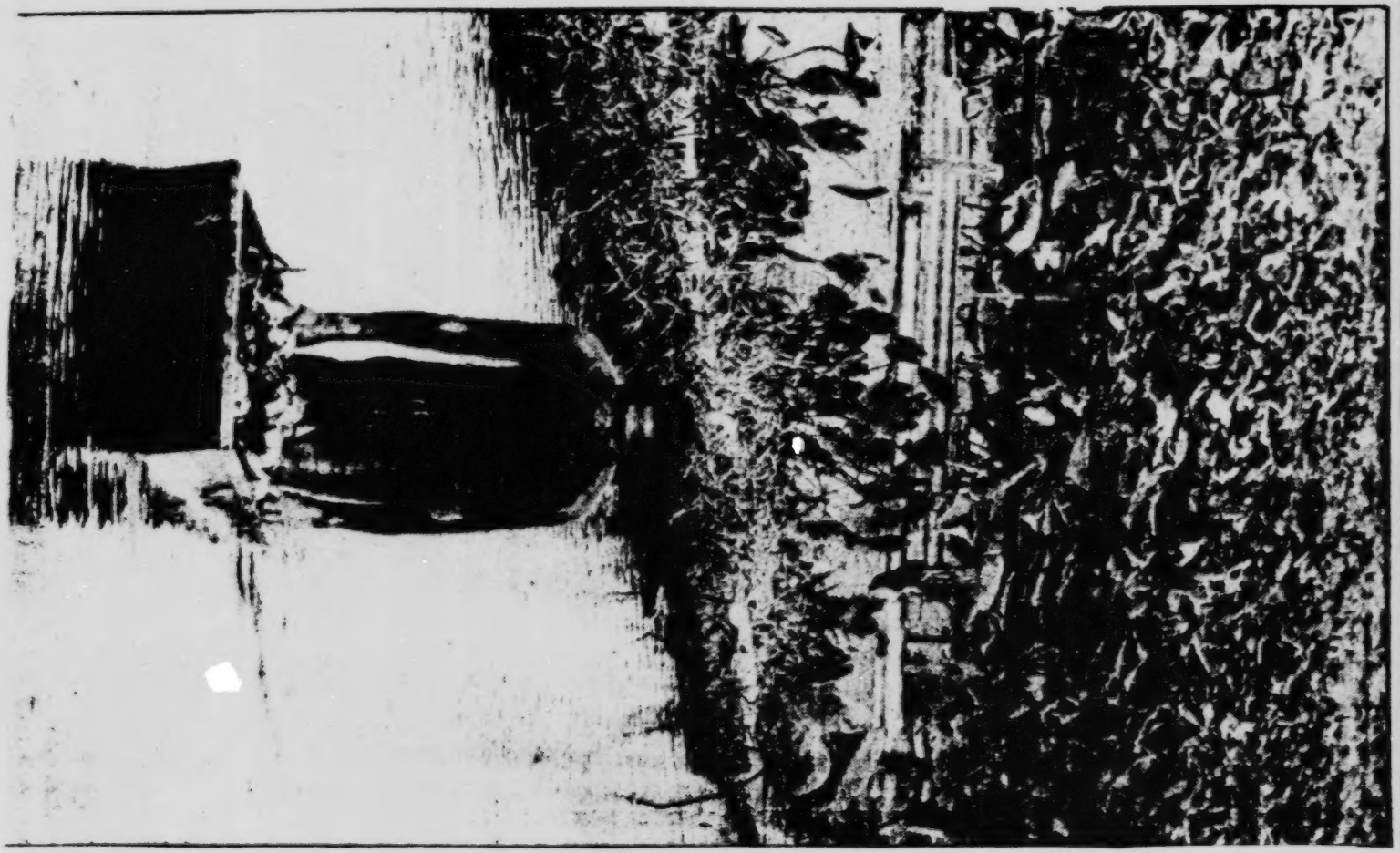


Harry Ung harvests a lotus root.

Harry Ung washes it in the stream on his farm.



Harry Ung pushes the harvested roots in a small boat, to a shed where they're cleaned again.



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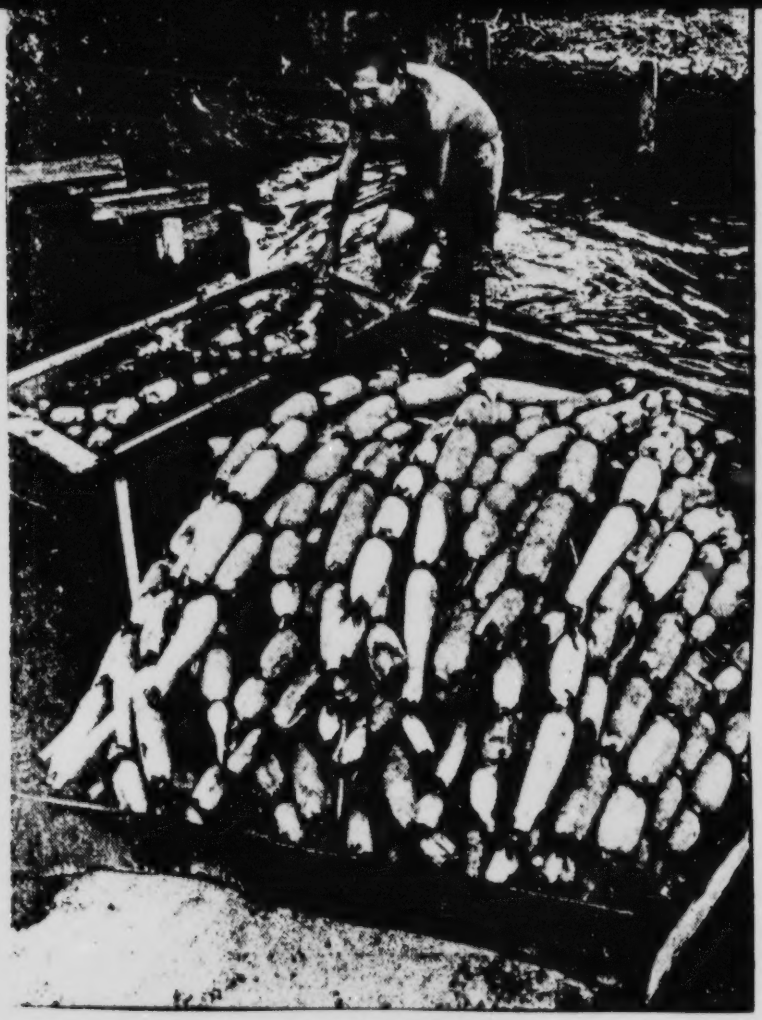

The Ung farm where lotus root is raised and Annie and Harry Ung, live pretty much as their parents did.

Outside the shed he washes off the mud.

Harry feeds some of the 50 ducks he raises.

February 4, 1984

# UH Plans EDB Tests on Grain Products

By Jeanne Ambrose
*Star-Bulletin Writer*

Laboratory testing for EDB contamination of grain and grain products taken from Hawaii market shelves is planned by the University of Hawaii Pesticide Hazard Assessment Project, although the state Department of Health is doing its own analysis and did not request help.

Calling it a matter of "territoriality," Barbara Siegel, director of the project, said she and her research associates should not be

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*EDB Editorial Page A-6*

doing the testing, because it falls under the health department's jurisdiction.

However, they will analyze products suspected of being tainted with EDB on an "unofficial" basis and will report their findings to the health department "to bring them wisdom," Siegel said yesterday.

She will go shopping this weekend to gather products such as the seasoned Japanese crackers known as arare, flour and baking mixes with local labels and breads and other baked goods made in Hawaii. Rice also will be analyzed although "there's no reason to suspect it" has been treated with ethylene dibromide, EDB, Siegel said.

Meanwhile, the health department is continuing its own product sampling, according to Health Director Charles G. Clark, who said yesterday he wasn't sure which products were being analyzed.

THE DEPARTMENT'S laboratory findings yesterday resulted in the withdrawal of pizza flour milled by Hawaiian Flour Mills for use in restaurants on Oahu and the Neighbor Islands.

The pizza flour, the first locally tested grain product to be recalled because of EDB findings, is one of 15 different kinds of flour milled at Hawaiian Flour Mills. Analysis of three other flour products from the mills showed no EDB, Clark said.

Hawaiian Flour Mills produces 4½ million pounds of flour each month, said Lee Blackburn, its president and general manager. That flour is milled from grain shipped from Montana, Washington, Oregon and Idaho that is supposed to be inspected on the West Coast before it is brought to Hawaii, Blackburn said.

"I can't give you an answer why this one popped up," he said, referring to the findings of EDB in the pizza flour.

When the discovery was made, Blackburn said he called Mainland inspectors to make sure that future grain shipments are checked before being sent.

"It's mass confusion over there because all the mills want the

**Turn to Page A-4, Col. 1**

## EDB at a Glance

- **EDB is an insecticide injected into the soil or sprayed on crops.**
- **There are no known cases of EDB causing cancer in humans but tests show it has caused cancer in laboratory animals.**
- **This week the federal government said EDB is present in a small percentage of wheat and grain products on grocery shelves.**
- **The federal EPA has left it to the states to protect consumers from EDB-contaminated products.**
- **EDB is legally being used in Hawaii by some pineapple and papaya growers until the existing EDB supply is used up.**
- **Federal officials say long-term exposure is the hazard, not eating a single piece of sprayed fruit or a cupcake made with contaminated flour.**

**Continued from Page One**

grain checked," he said.

THE EPA'S recommended tolerance levels for EDB were issued yesterday along with a federal ban on virtually all agricultural uses of the pesticide which has caused cancer, sterility and birth defects in laboratory animals.

Clark said the state will use the EPA guidelines as "interim standards in Hawaii" to determine when to recall grocery food tainted with EDB. However, the U.S. Food and Drug Administration should be helping the states in the laboratory testing and product recalls because the foods are transported all across the country.

It would be a "natural catastrophe" if all the states set their own EDB tolerance levels, Clark said.

"I don't think any state in the union could do all the testing required for all grain products available today," he said.

The California Department of Health Services, which made the discovery of EDB in certain Duncan Hines muffin mixes that led to its recall there and in Hawaii, also is using the EPA guidelines, said Al Bloch, program coordinator for California's health services food and drug branch.

HE SAID yesterday that his branch is sending its test results to Hawaii at the request of the health department here. By next week, the California laboratory will have tested about 1,000 products, including bread, breakfast cereal, corn chips, flour and corn tortillas, Bloch said.

Clark said he will await the results from California to avoid duplicating tests on the same products.

The laboratory test procedure takes about five days, he said. It involves soaking the sample for three or four days before it is run through a machine called a gas chromatograph which measures the amount, if any, of contamination.

Testing on one sample costs about $125, health department spokesman Don Horio said. The department is working on a testing schedule to accommodate the latest EDB analysis of food products.

It may have to ask other laboratories to help out, because the health department laboratory is in the midst of testing for EDB in water, Clark said.

A-4 Honolulu Star-Bulletin Saturday, February 4, 1984

# Shoppers React to EDB Warning

By June Watanabe
*Star-Bulletin Writer*

Coy Brown says the latest recall of a pesticide-contaminated food makes you wonder about the purity of food in general.

"What about baby food, or fruits?" he asked. "I hope they check those products."

Brown, interviewed while shopping at the Times Super Market in the Ward Avenue Gem's store, also said he believes the EDB contamination of certain varieties of Duncan Hines muffin mixes extends to other brands as well: "I think all the others are the same."

Andrea Danks, shopping at the Beretania Foodland Super Market with her children, said she's concerned, too, although the recall of the muffin mixes doesn't bother her as much as the contamination of other products, such as baby food.

She thinks the food industry is responsible for keeping its products safe because "the federal government can't really keep an eye on it."

Although Brown and Danks and several other food shoppers interviewed yesterday said the EDB scare does worry them, a survey of Honolulu supermarket managers shows "surprisingly" little consumer reaction.

Some stores reported no customer feedback, while others said only a handful have asked to return a Duncan Hines mix or to ask about the extent of the recall.

AND, DON Horio, a spokesman for the state Department of Health, said yesterday no consumer has called the department on the matter.

"There's no real panic," said Dennis Tanaka, the assistant manager of the Foodland Super Market in Koko Marina. He thinks "everybody may be getting numb to all the recalls. When there was the heptachlor scare, people would bring back anything (related to milk). With the muffin mixes, there's been surprisingly very little reaction," Tanaka said.

"We've only had one or two customers who were getting nervous," said Ben D'Amato, assistant manager of Foodland in Ewa Beach. "It's a whole different response than to heptachlor" (the pesticide found contaminated in local milk products in 1982, which prompted several widespread recalls).

Elwin Spray, the assistant manager of the Foodland store in Pearl City, agreed: "People buy cans of tuna fish on sale, about 15 to 20 of them at a time. But they buy cake mixes only one or two at a time and plan on using them right away," he said. "So we've had only a minimal amount, about a half dozen (mixes) returned, compared to about a couple hundred cans of tuna that were returned when that recall was first announced (last year)."

AND, HARRY Munsey, the manager of the Star Market in Kahala, points out that muffin mixes aren't "a necessity item, like rice or milk."

So, if they can't get their muffins, customers will buy cookies or other substitutes, Munsey said.

Apparently very few of the affected mixes were distributed in Honolulu to begin with. Wayne Yamamoto, manager of the Star Market in the Kamehameha Shopping Center, said he understands that fewer than 200 cases of the Duncan Hines mixes were delivered to Hawaii.

Most of the grocers interviewed said they didn't have any of the recalled mixes on their shelves. But managers like Wilfred Hirokane, of the Times Market in the Temple Valley Shopping Center, said, "We pulled all the Duncan Hines muffin mixes anyway as a precautionary measure and for customer confidence."

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February 4, 1984

# *EDB Ban Affects Papaya Shipments*

By Harry Whitten
*Star-Bulletin Writer*

About 80 percent of Hawaii's papaya crop is exported, according to Robert Souza, manager of the Papaya Administrative Committee.

He cited this figure in emphasizing the importance to the papaya industry of finding soon a satisfactory substitute for ethylene dibromide (EDB). The industry fumigates papayas with EDB before shipment so that fruit flies or their larvae are not exported with the fruit.

When the Environmental Protection Agency issued an order last Sept. 30 halting the sale and distribution of EDB, it was reported that the final phase-out would take place this coming Sept. 1.

Yesterday it was reported that the immediate ban imposed by the EPA on use of EDB to combat insects in grain may be extended to fruit in a few weeks.

Souza said the state's papaya crop in 1983 amounted to 43.2 million pounds, a total below the usual production figure. Of the total, 27 million pounds, or 63 percent, went to the Mainland, mostly the West Coast; 7 million pounds, or 16 percent, went to Japan; and 9 million pounds, or 21 percent, was sold in Hawaii.

SOUZA SAID that tests are continuing with a hot-cold treatment method to assure there are no fruit flies, eggs or larvae on the exported fruit and also with a double-dipping method to rid fruit of the insects.

He said the papaya industry has hired an independent consultant to investigate gamma irradiation as a method of killing fruit flies. The industry sees irradiation as a long-term solution, he said, but a plant would have to be built before it could be used.

Besides, approval of irradiation hasn't yet been given by the U.S. Food and Drug Administration, although approval by September has been predicted.

"The papaya industry needs something it can use immediately," Souza said. "We hope to have it ready by Sept. 1. We would use the new process as soon as possible. We would like to get out from under EDB."

In addition to papaya, EDB is used to fumigate the very small amount of litchi from Hawaii that is shipped to the Mainland, according to Lyle Wong, pesticides branch chief in the state Department of Agriculture. He said it is not used as a fruit-fly fumigant on any other crops exported from here.

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VOL. 74, NO. 7 HONOLULU, HAWAII Monday, January 7, 1985

# Pesticide Problem Plagues Isles

## POISONING PARADISE

The memories are strong. Overnight, milk, which for decades had been a symbol of wholesomeness and good health, became something to be feared because of evidence it contained a dangerous pesticide. And a new word entered the vocabulary of Hawaii residents: heptachlor.

Who can forget the sight of thousands of gallons of contaminated milk being poured into sewers, and the fear caused by 11 successive recalls of milk from shelves?

Three years to the month after the heptachlor story began unfolding, the issue won't go away, even though current testing shows milk is safe.

One study has found that 62 percent of the mother's milk tested during 1981-82 contained levels of heptachlor above the risk level for infants. A new study found a relationship between heptachlor exposure and birth weights, jaundice, the size of a baby's skull and other effects.

Today, the Star-Bulletin takes a new look at the heptachlor problem.

New evidence shows heptachlor is only one part of a pesticide nightmare facing Hawaii.

By John Christensen
*Star-Bulletin Writer*

On Aug. 17, 1982, Charles Clark, the director of the state Department of Health, "closed the book" on Oahu's milk contamination problems, saying the health risk from the pesticide heptachlor was low.

The book on heptachlor, however, will not stay closed. As one chapter ends and begins to fade, another unfolds. And each seems a little worse than its predecessor.

It has made gripping reading here, where a worried public fears for its health and awakens to the idea that chemical disasters don't always happen in places like Times Beach, Mo.

Hawaii's heptachlor problem has been the subject of national and international stories, poison in paradise being can't-miss ingredients in an exotic whodunit. And the case continues to unfold.

On Dec. 20, the *Star-Bulletin* reported that a University of Hawaii graduate student found a relationship between heptachlor in milk and a a range of disorders in infants born during the exposure. They include low birth weight, jaundice, and birth defects.

The *Star-Bulletin* has learned that there were several other pesticide contaminations—including in milk—on Oahu and that state, University of Hawaii and pineapple industry officials kept them secret.

Those contaminations include:

- Bromide residues in pineapple feed discovered by the Pineapple Research Institute in 1962.
- Heptachlor residues in pineapple plant matter found by Del Monte in 1970, 12 years before heptachlor became a household word.
- An island-wide contamination of Oahu milk with the residues of dibromochloropropane (DBCP), ethylene dibromide (EDB) or both, in 1975.

On Friday, DBCP use was banned by the federal Environment Protection Agency. Hawaii was the last state allowed to keep using the chemical. EPA officials, who said Friday that there is proof DBCP exposure can cause cancer, banned DBCP on the Mainland between 1978 and 1981. The Hawaii pineapple industry used the chemical to kill root worms.

"A brief filed by attorneys for Meadow Gold Dairies includes a memo from the Pineapple Research Institute showing that pesticide residue was found in pineapple green chop in 1962. The memo offers several courses of action. The one chosen, according to the brief, was to do nothing."

The *Star-Bulletin* also learned that the methods and conditions at the state Department of Health lab were so inadequate that the lab was incapable of reliably detecting pesticide residues in milk, according to the federal Food and Drug Administration.

Dairy products still contain heptachlor, although at levels well below that allowed by Federal regulations. But that does not necessarily mean that health is no longer a concern.

Nothing has been done to determine the extent of the public's exposure to heptachlor and what effect continued exposure, even at low levels, might have.

Dr. Irving Selikoff, director of the Environmental Science Laboratory at Mt. Sinai School of Medicine in New York, says it is essential to determine how pervasive heptachlor is here.

"You will not know if you're going to wait for the results of human observation," he says. "Do you allow people to be exposed to something that causes cancer in animals for another 25 or 30 years or don't you? A decision has to be made."

Clark, who is now retired, agrees. "When I said I was closing the book, I meant the issue of the milk itself. The levels were insignificantly low and it was safe to drink. I never meant I was closing the book on heptachlor entirely."

Clark was brought in by Gov. George Ariyoshi to head the state's health department after it came under fire for its handling of the heptachlor problem. As director, Clark won praise for confronting the immediate problem and taking steps to solve it.

**Heptachlor and humans:**

**What is heptachlor and why is it dangerous?**

Heptachlor is a member of a family of pesticides called the chlorinated hydrocarbons or organochlorines. Organochlorines are extremely active and tend to accumulate in fat.

In tests on laboratory animals heptachlor, caused a variety of health problems, including liver damage, reproductive disorders and cancer.

Heptachlor has been marketed since the late '40s. It has been so widely used that by the late 1960s it was found in surface water in all 48 contiguous Mainland states. It also turned up in meat, poultry and produce, weakened or killed fish and bird eggs, and worked mischief on other life forms as well.

Its residues were so widespread that regulations had to be changed to reflect a new reality: Heptachlor residues were everywhere. It was impossible, for example, to find milk without at least a trace of heptachlor in it.

Consequently, government agencies came up with a limit that balanced economic feasibility against safety. A zero tolerance was still the ideal, but food, milk and feed were allowed to contain a certain residue level before action was taken.

For heptachlor, that level was 0.3 parts per million (ppm) in food and milk.

In 1969, a national commission urged that the use of chlorinated hydrocarbons be curtailed because of their threat to the environment.

### Pesticides in Hawaii

In that same year, the Hawaii Department of Agriculture published its own report on pesticides. Some of its findings were staggering.

It reported that in 1968, 12.1 million pounds of pesticides were used in Hawaii, "10 times greater usage per square mile than on the Mainland." It was also 3½ times more pesticides used per person than on Mainland per person than on the Mainland and six times the usage in California.

of the Board of Agriculture noted in the report's forward that "Certain pesticides are also capable of degrading chromosomes in mammalian cell cultures and producing malformation in fetus or newborn animals. strict measures to minimize exposure to potentially hazardous pesticides are long overdue.





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# Early Heptachlor Warnings Uncovered After '82 Scare

January 7, 1985

Despite Otagaki's warning, the state did nothing to curb pesticide use. It has, however, gone to bat for agricultural interests when a chemical it used faced a federal ban.

The head of one state branch has testified that he did not know his agency, where he worked more than 25 years, was supposed to be testing animal feed for pesticides, according to state law.

In the case of heptachlor, the pineapple industry enlisted the aid of the state Department of Agriculture, the university's College of Tropical Agriculture and Covington & Burling, a powerful Washington, D.C. law firm.

And heptachlor was not then the industry's most important chemical.

It was the 29th most-used pesticide in 1958. Overall, including Hawaii, pineapple companies used 18,021 pounds of it that year for ant control. Pest-control operators used another 10,000 pounds to kill termites and other household insects.

The most popular insecticides that year, however, were DDT and chlordane. All three are carcinogenic (induce cancer).

They also tend to accumulate in the fatty tissues of their hosts. That means that if a human consumes milk from a cow that has been fed an excessive amount of feed treated with heptachlor, the chemical is going to find its way into the human's fat.

By 1968, Oahu dairymen had been feeding their cattle green chop made from the leafy remains of pineapple plants for 10 years. Whether the chop contained any pesticide residues was never officially determined, because no one ever tested the feed. Officially, that is.

## Contamination in 1958

But Stuart Cohen, a chemist for the U.S. Environmental Protection Agency, reports that dairy cattle were being fed heptachlor-tainted green chop in 1958.

Cohen was sent to Hawaii in the spring of 1982 to investigate the heptachlor problem. Questioned recently about his investigation, Cohen said that talking to farmers, growers and University of Hawaii people convinced him that "things that were not quite kosher."

He learned, for example, that at least two farmers were feeding green chop treated with heptachlor to their cattle in 1958. He wrote in his report, "There was a possibility for Oahu milk contamination by heptachlor epoxide in the '60s also."

Cohen's suspicions were confirmed in documents filed recently in Circuit Court as part of a complex heptachlor lawsuit. A brief filed by attorneys for Meadow Gold Dairies includes a memo from the Pineapple Research Institute showing that pesticide residue was found in pineapple green chop in 1962.

The memo offers several courses of action. The one chosen, according to the brief, was to do nothing. "It concealed the information from the dairy industry and the government using the policy of laissez-faire as the buzzwords for its cover-up."

There was no requirement that green chop be tested in those days, nor had the Federal government established a pesticide-tolerance level for it. It was not until 1969, in fact, that the manufacturer of heptachlor, the Velsicol Chemical Corp., petitioned to have a tolerance level set for feed residues.

It backed up its petition with data showing that a field harvested a year after heptachlor was used was almost completely void of heptachlor.

The same court document, however, points out that the research institute ignored a consultant's recommendation in 1967 or 1968 that fields not be sprayed with heptachlor within 2½ years of the time they would be harvested for green chop.

A year later, it reports, Del Monte discovered that its green chop samples taken a year after spraying contained heptachlor. Again, nothing was reported to the public.

It was Cohen of the EPA who established that the '82 exposure, which brought widespread public concern, began not the previous fall or summer, as was commonly thought, but went back at least as far as October 1980. The proof was a sample of Oahu milk containing heptachlor residue tested in a government lab in Alabama.

Thus, by the time the DOH lab discovered heptachlor residues Jan. 6, 1982, heptachlor had been in the milk at least 14 months and possibly longer. And at levels that in some cases were 10 times the action level (the limit that federal regulations allow).

Cohen calculated that Oahu's children were exposed to heptachlor at levels well above the acceptable daily intake (ADI). The ADI is a safety factor for human exposure determined from animal studies. It is computed by dividing the level at which there are no observable effects by a safety factor which allows for individual sensitivities and an overall sensitivity.

The traditional safety factor for most chemicals is 100. But when a carcinogen is involved, the factor is 1,000 and some scientists now prefer 5,000.

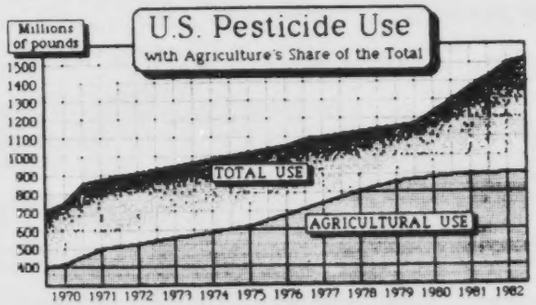
Cohen figured that for children between 1 and 5 who drank cow's milk, the safety factor was reduced to between 15 and 27. He calculated the safety factor in breast milk at between 14 and 25 "and may continue into the future because of body storage of heptachlor."

He added that exposure to heptachlor for fetuses "should also be considered, but a safety factor for this exposure cannot be estimated from existing data." There are indications that the reduced safety factors were not protection enough.

Two University of Hawaii graduate students have done separate studies of infants born during the heptachlor exposure. Both say that their findings are, in the words of one, "statistically significant, but not necessarily clinically significant." (See accompanying story.)

Finally, Cohen found that beef from dairy cattle was sold to and consumed by Oahu consumers for at least a year. The beef contained low levels of heptachlor.

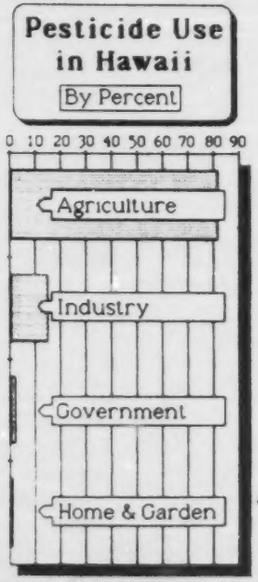
Asked why residues didn't show up in tests by the Department of Health, Cohen said, "The DOH was definitely having its problems."




# Heptachlor Trouble Is Not Over

Charles Clark

"By 1968, Oahu dairymen had been feeding their cattle green chop made from the leafy remains of pineapple plants for 10 years. Whether the chop contained any pesticide residues was never officially determined because no one ever tested the feed."




# POISONING PARADISE

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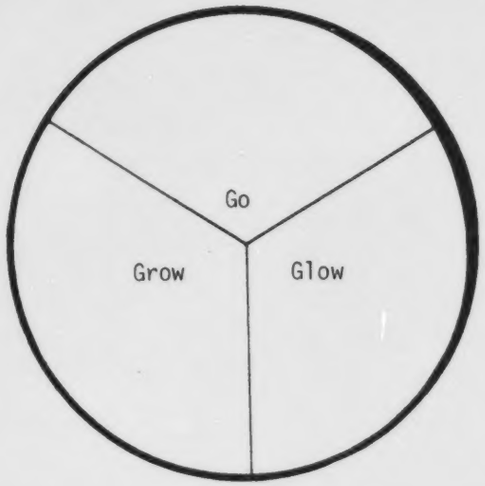
KEEPING HEALTHY IN SCHOOL

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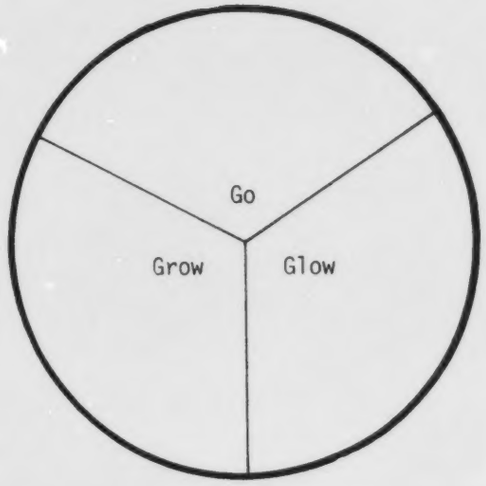


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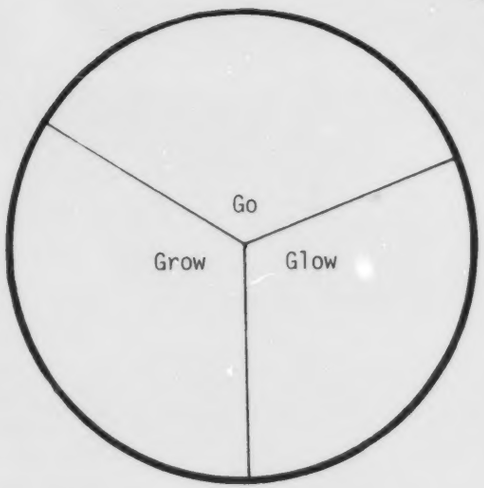


Yes No

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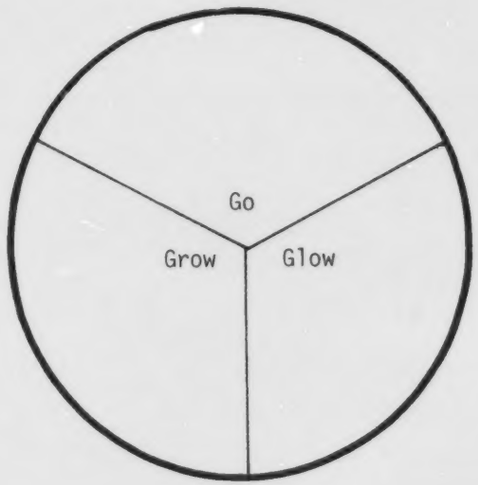
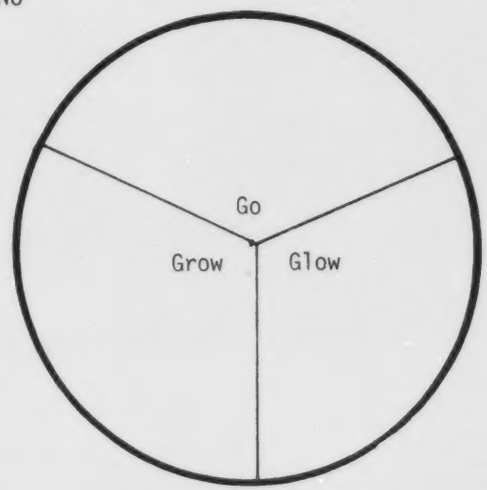



Yes No






Yes No

426

## 'ŌPAE E

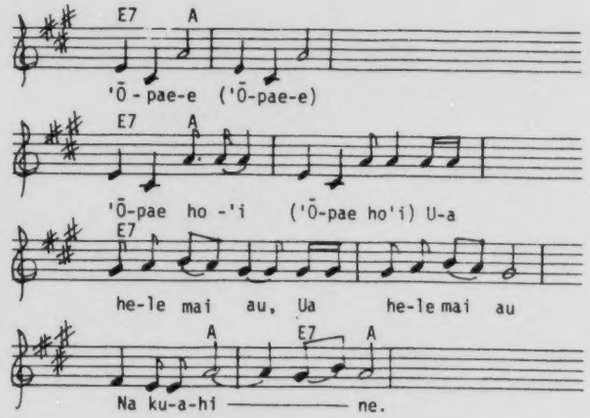
Traditional

According to legend, a puhi (eel) kidnapped a maiden from the village of Kahakuloa, Maui. She was the kaikuahine (sister) of one of the village boys who then called on various sea creatures to help rescue her from the eel's cave. All refused, claiming that they were too small to challenge the big eel. Finally, the little 'opihi (limpet) agreed to kōkua (help) the boy by clamping themselves tightly over the maka (eyes) of the puhi so that he could not see as the boy went into the cave to rescue his kaikuahine.

Note: Verses 1 through 4 are identical except that the name of each new sea creature is substituted in the proper place.

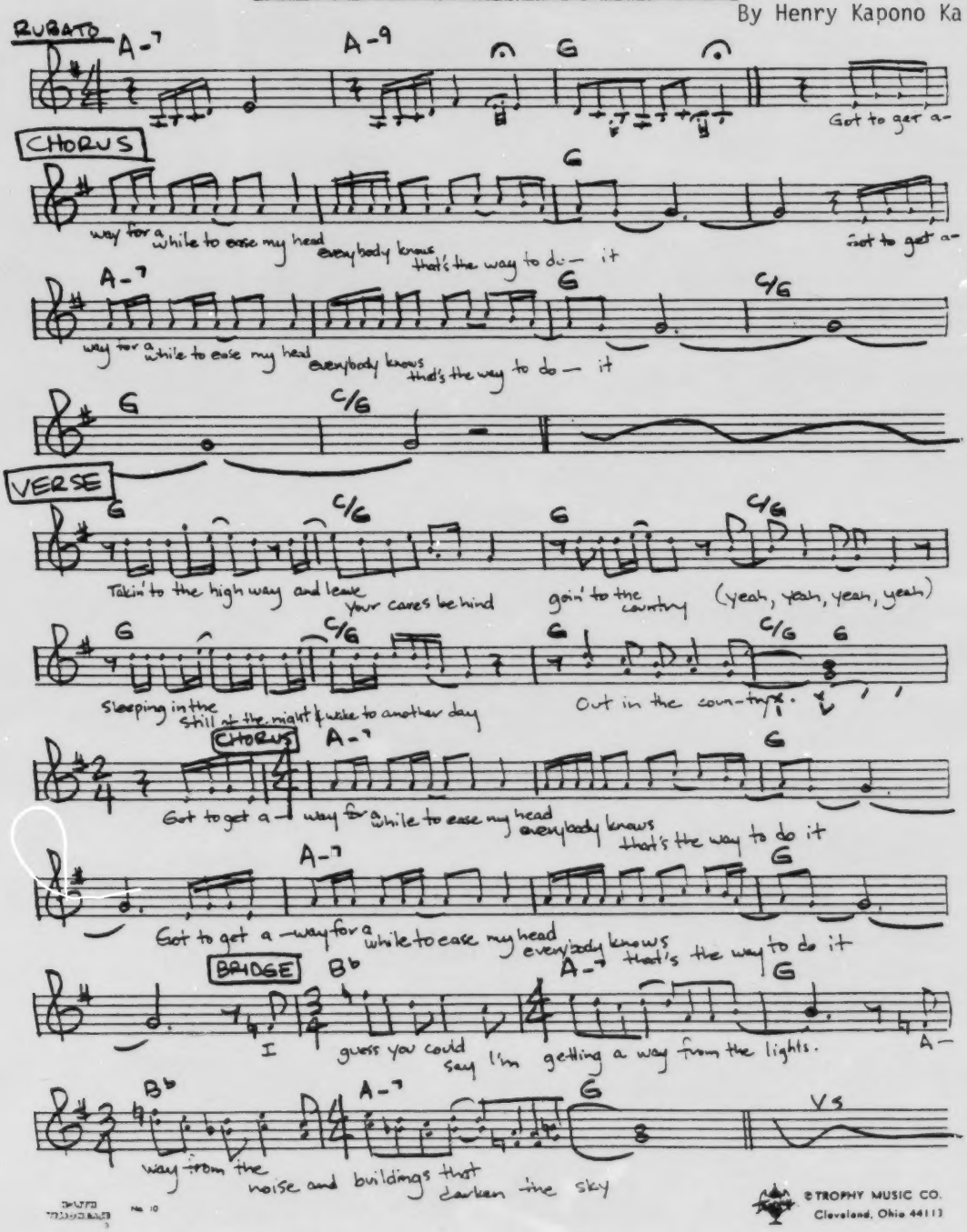
E7 A
1. 'Ōpae e! ('Ōpae e!) — Oh, Shrimp! (Oh, Shrimp!)
E7 A
'Ōpae ho'i! ('Ōpae ho'i!) — Indeed, you, Shrimp! (Indeed, you, Shrimp!)
E7
Ua hele mai au, ua hele mai au — I have come, I have come
A
Na Kuahine. — For Sister.
E7 A E7 A
Ai iā wai? Ai iā Puhi! — Caught by whom? Caught by Eel!
E7
Nui 'o Puhi, a li'ili'i au, — Eel is big and small am I,
A
'A'ole loa! — No indeed!

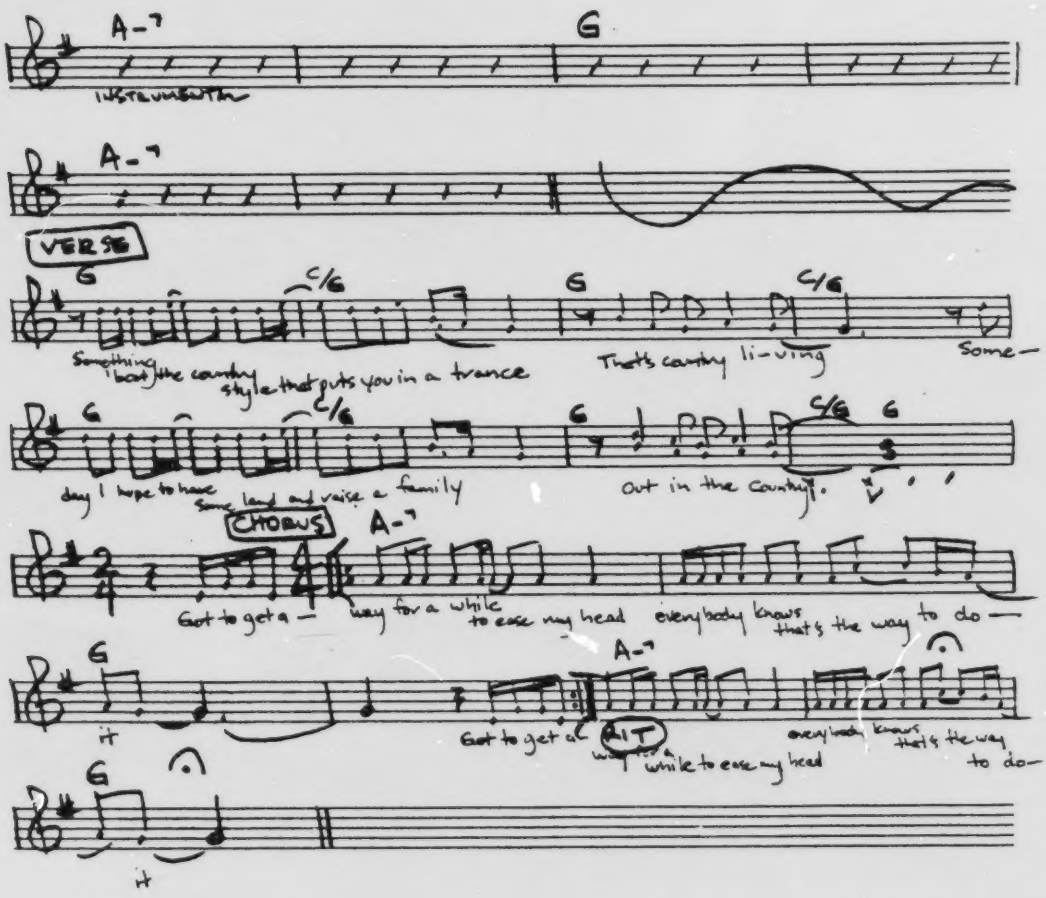
E7 A
5. 'Opihi e! ('Opihi e!) — Oh, Limpet! (Oh, Limpet!)
E7 A
'Opihi ho'i! ('Opihi ho'i!) — Indeed, you, Limpet! (Indeed, you, Limpet!)
E7
Ua hele mai au, ua hele mai au — I have come, I have come
A
Na Kuahine. — For Sister.
E7 A E7 A
Mai maka'u! Na'u e pani — Do not fear! I will close
E7 A
I ka maka a 'ike 'ole kēlā puhi! — The eyes until that eel sees nothing.

2. Pipipi — Periwinkle
3. Pūpū — Seashell
4. Kūpe'e — Nerita shellfish

Recordings: Hawaiian Hula Eyes, Mountain Apple Co., Brothers Cazimero
Mokulana, Banyon Records, Leon and Malia
This Is Eddie Kamae, Hula Records, Eddie Kamae and the Sons of Hawai'i

# GOT TO GET AWAY

By Henry Kapono Ka'aihue



GOT TO GET AWAY
Pg 2

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# GOT TO GET AWAY FOR A WHILE

By Kapono Ka'aihue

```
      G          A7
//:  Got to get away for a while to ease my head
                                          G
    Everybody knows that's the way to do it://
                                  C/G
    Takin' to the highway and leave your cares behind
     G                    C/G
    Goin' to the country, yeah, yeah, yeah, yeah
     G                                    C/G
    Sleeping in the still of the night and wake to another day

     G               C/G
    Out in the country.
                   A7
//:  Got to get away for a while to ease my head
                                       G
    Everybody knows that's the way to do it://
     Bb                          A7                  G
    I guess you could say I'm getting away from lights
     Bb                          A7                      G
    Away from the noise and buildings that darken the sky
     G                                       C/G
    Something about the country style that  puts you in a trance
     G              C/G
    That's country living.
            G                                C/G
    Someday I hope to have some land and raise a family,
     G               C/G
    Out in the country.
                   A7
//:  Got to get away for a while to ease my head
                                          G
    Everybody knows that's the way to do it://
```

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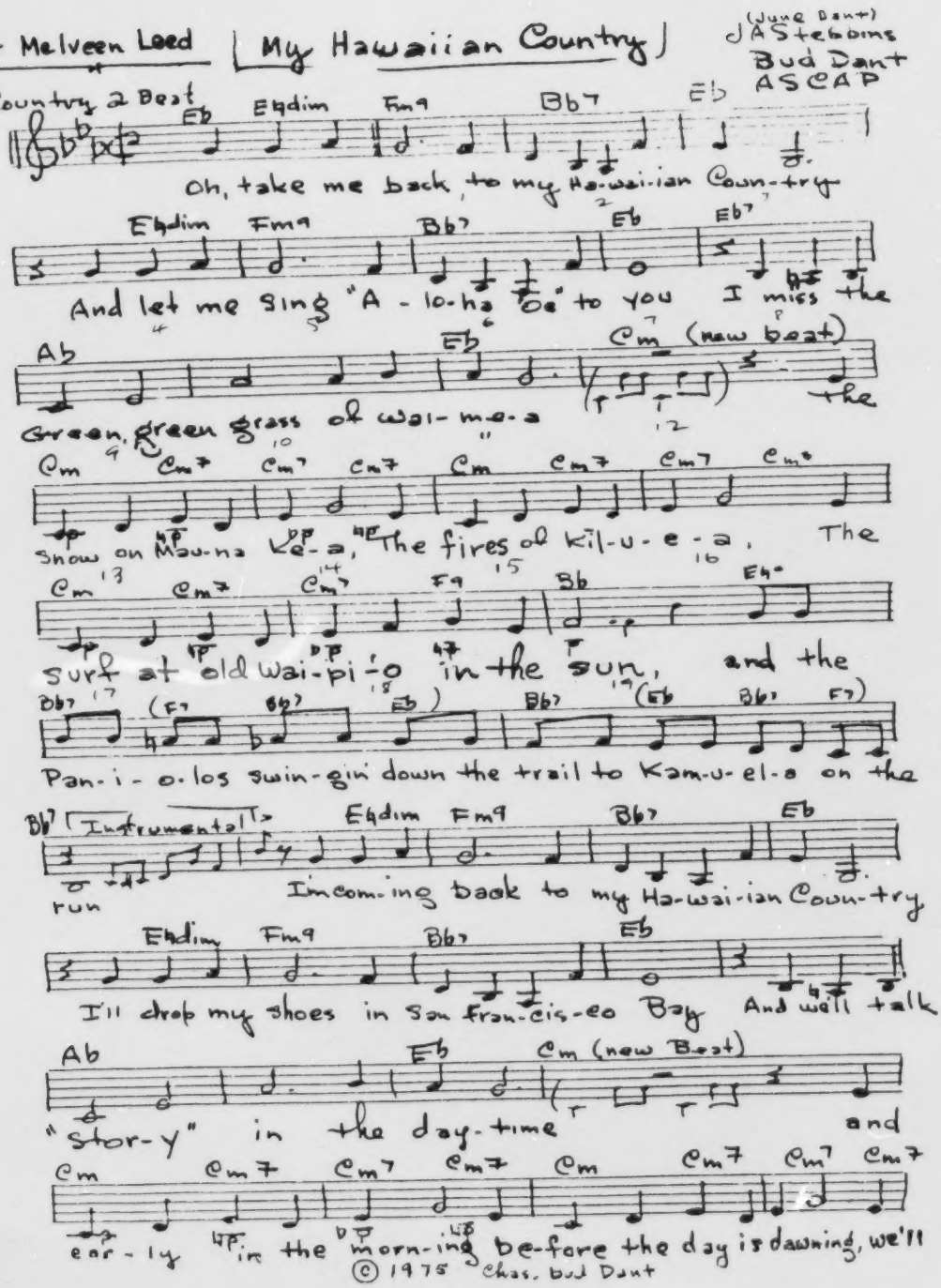
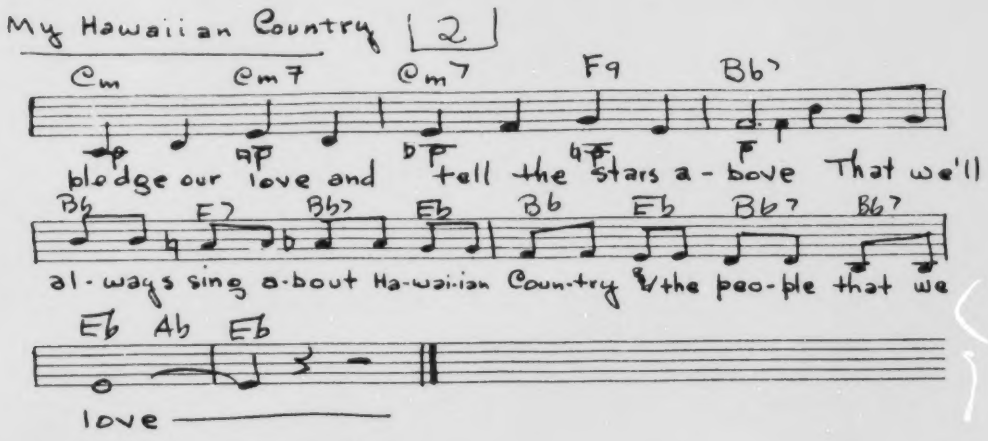

For Melveen Leed
My Hawaiian Country
(June Dant)
J A Stebbins
Bud Dant
ASCAP
Country 2 Beat
Oh, take me back to my Ha-wai-ian Coun-try
And let me sing "A - lo-ha Oe" to you I miss the
Green, green grass of wai-me-a (new beat) the
Snow on Mau-na Ke-a, The fires of Kil-u-e-a, The
surf at old Wai-pi-o in the sun, and the
Pan-i-o-los swin-gin' down the trail to Kam-u-el-a on the
Instrumental
run
I'm com-ing back to my Ha-wai-ian Coun-try
I'll drop my shoes in San Fran-cis-co Bay And we'll talk
"Stor-y" in the day-time and
ear-ly in the morn-ing be-fore the day is dawning, we'll
© 1975 Chas. Bud Dant


My Hawaiian Country
2
Cm Cm7 Cm7 F9 Bb7
bledge our love and tell the stars a-bove That we'll
Bb F7 Bb7 Eb Bb Eb Bb7 Bb7
al-ways sing a-bout Ha-waiian Coun-try & the peo-ple that we
Eb Ab Eb
love

MY HAWAIIAN COUNTRY

Eb F7 Bb7 Eb
Oh take me back to my Hawaiian country
F7 Bb7 Eb
And let me sing "Aloha 'oe" to you
Ab Eb
I miss the green, green grass of Waimea
Cm
The snow on Mauna Kea
The fires of Kīlauea Bb
The surf at old Waipi'o in the sun
Bb7
And the paniolo swinging down the trail to Kamuela on the run
F7 Bb7 Eb
I'm coming back to my Hawaiian country
F7 Bb7 Eb
I'll drop my shoes in San Francisco Bay
Ab Eb
And we'll talk story in the daytime
Cm
And early in the morning before the day is dawning
F7 Bb7
We'll pledge our love and tell the stars above Eb-Ab-Eb

That we'll always sing about Hawaiian country and the people that we love.

Composed for Melveen Leed

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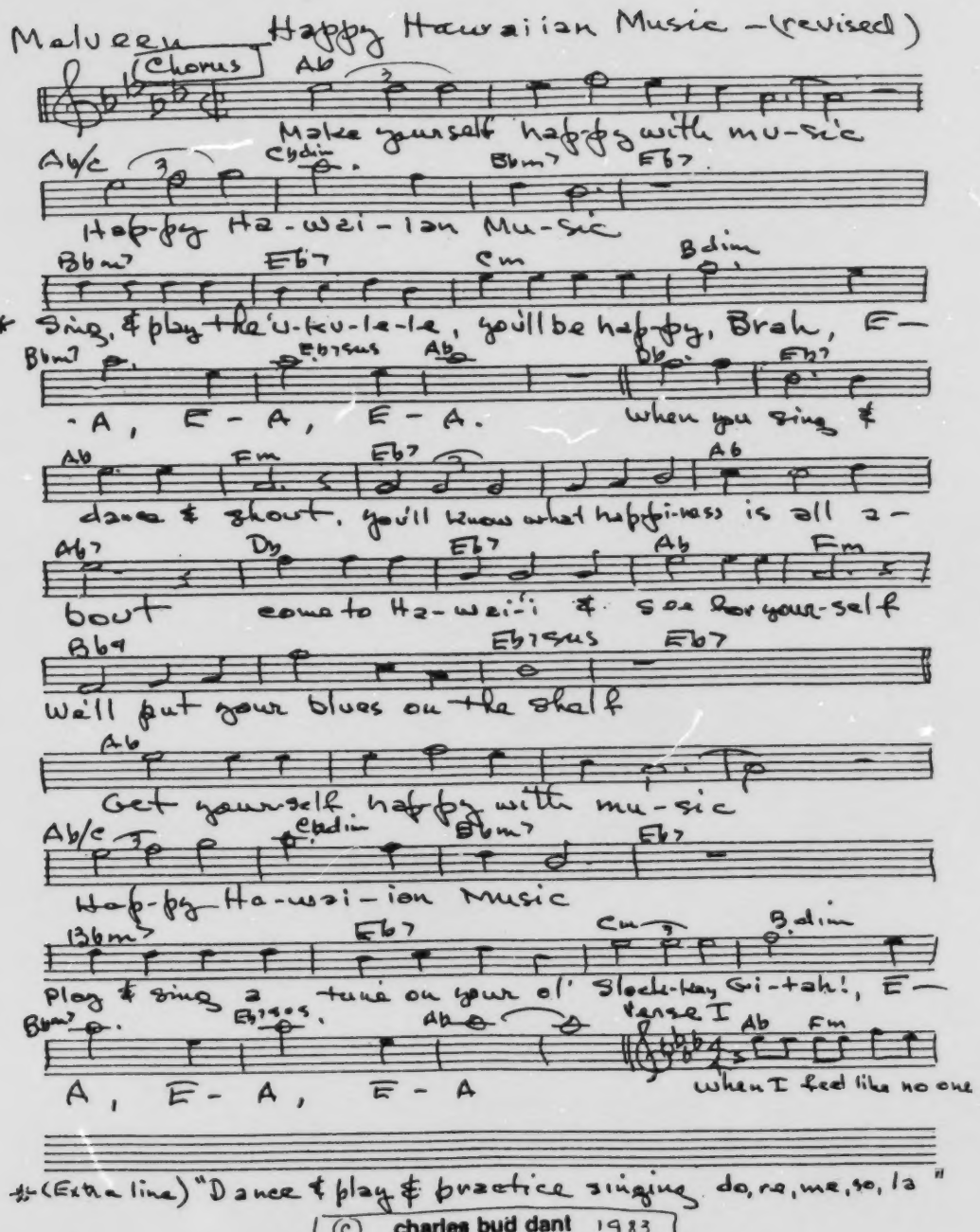
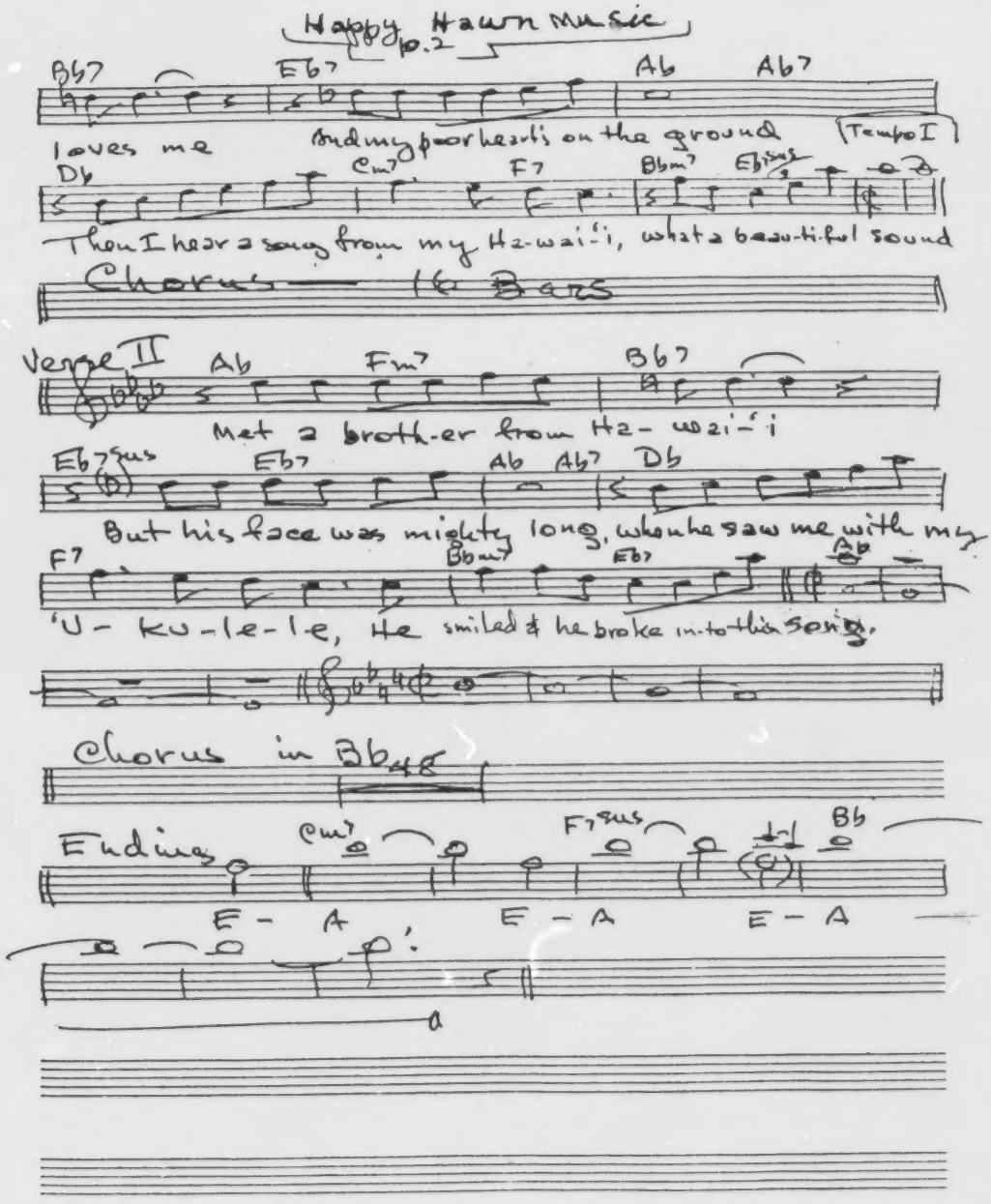
© 1975 JA Stebbins - Bud Dant


Maluera Happy Hawaiian Music -(revised)
(Chorus)
Make yourself happy with mu-sic
Hap-py Ha-wai-ian Mu-sic
* Sing & play the 'u-ku-le-le, you'll be hap-py, Brah, E-
-A, E-A, E-A. when you sing &
dance & shout, you'll know what happi-ness is all a-
bout come to Ha-wai-i & so for your-self
We'll put your blues on the shelf
Get yourself happy with mu-sic
Hap-py Ha-wai-ian music
Play & sing a tune on your ol' Steele-kay Gi-tah!, E-
A, E-A, E-A
verse I
when I feel like no one
*(Extra line) "Dance & play & practice singing do, re, mi, so, la"
© charles bud dant 1983




charles bud dant

# HAPPY HAWAIIAN MUSIC

By Bud Dant

Chorus:
A♭
Make yourself happy with music
A♭/C C♭dim B♭m7 E♭7
Happy Hawaiian Music
B♭m7 E♭7
Sing and play the 'ukulele
Cm Bdim B♭m7 E♭7 A♭
You'll be happy, Brah, eā eā eā.

D♭ E♭7 A♭ Fm
When you sing and dance and shout
E♭7 A♭ A♭7
You'll know what happiness is all about
D♭ E♭7 A♭ Fm
Come to Hawai'i and see for yourself
B♭9 E♭7
We'll put your blues on the shelf
A♭
Get yourself happy with music
A♭/C C♭dim B♭m7 E♭7
Happy Hawaiian Music
B♭m E♭7 Cm Bdim
Play and sing a tune on your ol' slack key gitah
B♭m7 E♭7 A♭
Eā eā eā.

Verse 1:
A♭ Fm B♭7
When I feel like no one loves me
E♭7 A♭(2) A♭7(2)
And my poor heart's on the ground
D♭ Cm7 F7
Then I hear a song from my Hawai'i
B♭m7 E♭
What a beautiful sound.

Verse 2:
A♭ Fm7 B♭7
Met a brother from Hawai'i
E♭7 A♭ A♭7
But his face was mighty long
D♭ F7
When he saw me with my 'ukulele
B♭7 E♭7 A♭
He smiled and he broke into this song.

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MOLOKA'I MEMORIES
By Jay Larrin
Composed for Melveen Leed

C C7
From out across the ocean
F
A dream returns to me
C G7
A gentle breeze brings back my Moloka'i memories
C C7 F
The valley of Waikolu, the waters of Wailau
C G7 C
The rains of Pelekunu, the winds of Pālā'au

C C7
From out across the sea mist
F
The clouds come rolling in
C
And in the blues of evening
G7
I remember my old friends
C C7
I hear the island music
F
They always sang to me
C G7 C-F-C
Just a part about my Moloka'i memories.
C7 F
And I am dreaming of those yesterdays
C
Dreams of long ago
G7
Went down into those valleys with my family I would go
C C7 F
Swimming in the mountain streams, singing in the wind
C G7 C-F-C
Oh Moloka'i memories come singing once again.

Oh my friends are by the water with their old guitar I know } spoken
The heavens glow with love above my home at old Pūkoʻo

C C7
Grandma's in the garden
F
Grandpa's by the sea
C G7 C
And Lord I do remember all the love they gave to me
F C G7 C
And how I do remember Moloka'i Memories.

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# PLACE NAME SONGS

The following record albums have the words printed on the jackets.

GK - Genoa Keawe Hulas of Hawai'i, LP, Genoa Keawe Records, GK 101, Genoa Keawe.
GJ - Guava Jam, LP, Hula Records, HS-543, Sunday Mānoa.
HS - Hawaiian Style, LP, Hula Records, HS-508, Kahauanu Lake Trio.
MH - Mele Hula Vol. I, LP, Noelani Records, NRS-102, Various Artists.
RK - Right On Kēia, LP, Hula Records, HS-505, Kīhei Brown Trio.

| Title | Island | Record |
|---|---|---|
| 1. Aloha Kaho'olawe | Kaho'olawe | RK |
| 2. Aloha 'Ia 'O Wai'anae | O'ahu | HS |
| 3. Aloha Kaua'i | Kaua'i | MH |
| 4. Anahola | Kaua'i | GK |
| 5. 'Āina o Lāna'i | Lāna'i | GK |
| 6. Hu'ehu'e | Hawai'i | HS |
| 7. Ka Nani A'o Ka'ū | Hawai'i | GK |
| 8. Ka Paniolo Nui o Moloka'i/Kualapu'u | Moloka'i | HS |
| 9. Kaulana Kaua'i | Kaua'i | HS |
| 10. Kaulana ʻo Waimānalo | O'ahu | GJ |
| 11. Kīpū Kai | Kaua'i | MH |
| 12. Lumaha'i | Kaua'i | GK |
| 13. Manowaiopuna | Kaua'i | GK |
| 14. Pauoa Liko Ka Lehua | O'ahu | GK |
| 15. Punalu'u | O'ahu | HS |
| 16. 'Ulupalakua | Maui | GK |

# BEAUTIFUL KAUA'I

By Randy Farden

```
D               D7   G        D
There's an island across the sea,
                  E7   A7          D
     Beautiful Kaua'i, beautiful Kaua'i
              D7          G     D
And it's calling, just calling me,
                  E7   A7         D(4) D7
     Beautiful Kaua'i, beautiful Kaua'i
         G                                D
In the midst of Fern Grotto, Mother Nature

     made her home
         E7                        A7
And the falls of Wailua where lovers often roam
          D            G                  D
So I'll return to my isles across the sea
                  E7    A7          D
     Beautiful Kaua'i, beautiful Kaua'i.
```

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# PANIOLO COUNTRY

By Marcus Schutte

```
 G              C
Places I have been
 D7             G
Cities I have seen
       C                                    D7
With concrete canyons rising from the ground
 G                  C
Miles and miles of asphalt trails
 A7                   D7
Stretched across the land
 C                                                    D7
Stampeding little ponies leaving smoke along the way


                       G        C
CHO.  Going back to Paniolo Country
       D7                    G
       Stars at night no city lights
                 C           D7            G
       Paniolo country my home on the range
                 C        D7                       G
       Paniolo country rain drops fall the grass grows tall
                 C           D7            G
       Paniolo country my home on the range


                 C
I made up my mind
 D7                 G
Won't waste any time
     C                                       D7
I'm going back to where the clouds ride high
 G                   C
Take my word it's pretty
     A7                   D7
Not like the great big city
       C                                              D7
Where we still breathe that cool clear mountain air
```

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GENERAL APPENDICES

BASIC HAWAIIAN VOCABULARY LISTS, GRADES K-3

CONCEPTS OF SELF AND 'OHANA

HO'OPONOPONO

BIBLIOGRAPHY

SONGS

RECORDS

HAWAIIAN STUDIES PROGRAM

BASIC HAWAIIAN VOCABULARY LISTS, GRADES K-3

The Basic Vocabulary Lists which follow contain Hawaiian words which range from very basic and culturally important terms to more general ones identifying early and modern Hawaiian and imported values, practices, objects and people. The words have been drawn from the Basic Hawaiian Vocabulary Lists, #'s 1 and 2 which were reprinted in Appendix D, Hawaiian Studies Program Guide (Draft), Office of Instructional Services/General Education Branch, RS 81-0655, March 1981. The two lists were created for all learners of Hawaiian at the elementary level, whether they be in elementary school, high school, college or adult school, by Haunani Bernardino, Dr. Emily 'Ioli'i Hawkins, and Robert Lokomaika'iokalani Snakenberg.

After using the lists during the 1981-82 school year in the implementation of the Hawaiian Studies Program, District Resource Teachers and kupuna suggested that the two lists be regrouped to reflect more explicitly the vocabulary which would be appropriate for each grade level from kindergarten to sixth. The following lists are the results of a series of meetings held in the Fall of 1982. The Department acknowledges the kōkua of and expresses "Mahalo nui loa!" to the following:

| | |
|---|---|
| Honolulu District | Solomon Kaulukukui and Kupuna Katherine Makena Harbottle |
| Central District | Jan Kahōkū Yoneda |
| Leeward District | Mililani Allen and Kupuna Elizabeth Kauahipaula |
| Windward District | Elsie Kawao Durante, Kupuna Jessie Pi'imauna and Kupuna Lilia Hale |
| State Office | Noelani Māhoe and Lokomaika'iokalani Snakenberg |

These lists are constructed so that the words are grouped in categories such as social life and relations, nature, food, body parts, etc. Within each category, the words are glossed following the order of the sounds in the Hawaiian alphabet, the Pī'āpā. Words beginning with the glottal stop or 'okina (') are to be found after the words beginning with the other consonants.

The alphabetical order followed, therefore, is: a, e, i, o, u, h, k, l, m, n, p, w, 'a, 'e, 'i, 'o, 'u

This arrangement in Hawaiian alphabetical order is being applied only to initial vowels and consonants (including the 'okina) and is being done to underscore the importance of the 'okina in both pronunciation and spelling. It also serves to help the learner memorize which words begin with the 'okina by having them physically separated from the words spelled with the same initial vowel.

## Social Life & Relations

| | |
|---|---|
| ali'i | chief(ly), royal, noble |
| hānai | to raise, feed; to adopt, adopted child |
| ho'oponopono | to make right (Hawiian family problem resolving) |
| luahine | old woman |
| 'elemakule/'elemākule | old man/old men |

## Nature

| | |
|---|---|
| ala | path, roadway |
| aumoe | middle of night |
| lepo | dirt, dirty |
| moana | ocean, deep sea |
| pūpū | sea shell |
| wailele | waterfall |

## Hawai'i Lifestyle (hula, music, arts/crafts, games/sports)

| | |
|---|---|
| *hīmeni | to sing; song, hymn |
| hoe | paddle |
| mele | to sing; song, chant |
| pule | to pray; prayer; week |

## Food

| | |
|---|---|
| hua | fruit |
| hua'ai | edible fruit |
| hua moa | egg |
| *kuawa | guava |
| liliko'i | passion fruit |
| limu | seaweed |
| mai'a | banana |
| *manakō | mango |
| mea'ai | food |

## Body Part & Functions

| | |
|---|---|
| alelo | tongue |
| iwi | bone |
| kua | back |
| ku'eku'e maka | eyebrow |
| lae po'o | forehead |
| lihilihi maka | eyelash |
| lolo | brain |
| luhi | tired |
| na'au | intestines, guts |
| pu'uwai | heart |

## Household Terms

| | |
|---|---|
| kelepona | telephone |

## Miscellaneous Verbs

| | |
|---|---|
| heluhelu | to read |

* Hawaiianized English

| | |
|---|---|
| hiki | to be able, can |
| holoi | to wash, wipe, erase |
| lohe | to listen |
| moe | to lie down |
| 'au'au | to bathe, swim |
| 'ike | to see, know |

Miscellaneous Adjectives

| | |
|---|---|
| hu'ihu'i | chilly, cool |
| kahiko/kāhiko | old |
| 'u'uku | small, tiny |

Colors

| | |
|---|---|
| See K-1 | master |

Numbers

| | |
|---|---|
| 0-100 | master |
| ho'okahi | one of something - master |

Days of Week

| | |
|---|---|
| See K-1 | master |

Months

| | |
|---|---|
| See K-1 | exposure |

* Hawaiianized English



Modes of Transportation

| | |
|---|---|
| ka'aahi | train |
| moku | ship |
| mokulele | airplane |
| *paikikala | bicycle |
| *'okomopila | automobile |

Zoo Animals

| | |
|---|---|
| *kamela | camel |
| keko | monkey |
| *kepela | zebra |
| *kia | deer |
| *kika | tiger |
| *kilape | giraffe |
| *liona | lion |
| *papulo | buffalo |
| *pea | bear |
| *'elepani | elephant |

Locatives/Location Words

| | |
|---|---|
| hope | behind, after, last, in back |
| kai | seaward, sea, ocean |
| lalo | under, beneath |
| loko | inside |
| luna | up, over, above, on top |
| mua | forward, in front, before, first |

| | |
|---|---|
| waena | between, among |
| waho | outside |
| uka | mountainward, uplands, inland |

Social Life & Relations - Plural forms

| | |
|---|---|
| kaikamāhine | girls/daughters |
| kānaka | persons, people |
| kūpuna | grandparents |
| mākua | parents |
| wāhine | women |

Nature

| | |
|---|---|
| honua | land, earth |
| kuahiwi | mountain |
| kumu lā'au | tree |
| lā'au | bush, tree, herb medicine |
| lau | leaf |
| pali | cliff |
| 'āina | land, earth |

Hawaii Lifestyle (hula, music, arts/crafts, games/sports)

| | |
|---|---|
| lei | garland; to put on a garland |

Food

| | |
|---|---|
| inu | to drink |
| kālua | to steam in imu |

Body Part and Functions

| | |
|---|---|
| kīkala | hip |
| ku'eku'e lima | elbow |
| ku'eku'e wāwae | ankle |
| kuli | knee |
| lauoho | hair |
| lehelehe | lip |
| manamana lima | finger |
| manamana wāwae | toe |
| niho | teeth |
| papakole | buttock |
| pāpālina | cheek |
| umauma | chest |
| 'ūhā | thigh |

Household Terms

| | |
|---|---|
| kukui | light, lamp |
| moe | bed |
| pahu 'ume | drawer, bureau |

Miscellaneous Verbs

| | |
|---|---|
| helu | to count |
| hō'ike | to show |
| komo | to enter |
| 'ōlelo | to speak |

Miscellaneous Adjectives

| | |
|---|---|
| pilikia | trouble |

Miscellaneous

| | |
|---|---|
| mea | thing, person |

Numbers

0-19

| | |
|---|---|
| iwākalua | twenty |

Decades; concept of kana-

| | |
|---|---|
| kanakolu | thirty |
| kanahā | forty |
| kanalima | fifty |
| kanaono | sixty |
| kanahiku | seventy |
| kanawalu | eighty |
| kanaiwa | ninety |

Kana is a prefix which indicates that it multiplies the base word (kolu, hā, etc.) by ten (10 x 3 = 30).

| | |
|---|---|
| Ho'okahi (one, alone, one of something as opposed to one in a series) | exposure |
| ho'okahi kāma'a | (just) one shoe |
| ho'okahi wa'a | (only) one canoe |

* Hawaiianized English



Days of Week

| | |
|---|---|
| See K-1 | exposure |

Months

| | |
|---|---|
| See K-1 | exposure |

Clothing

| | |
|---|---|
| kāma'a | shoe |
| lole wāwae | pants |
| mu'umu'u | loose gown |
| pālule | shirt |
| pāpale | hat |

Animals

| | |
|---|---|
| See K-1 | exposure |

Transportation

| | |
|---|---|
| *ka'a | car |
| wa'a | canoe |

Social Life & Relations

| | |
|---|---|
| inoa | name |
| kaikamahine | girl, daughter |
| kamaiki/*pēpē | baby |
| kāne | man, husband |
| keiki | child |
| keiki kāne | boy, son |
| kupuna | grandparent |
| kupuna wahine/kupuna kāne | grandmother/grandfather |
| makua | parent |
| makua kāne/makuahine | father/mother |
| wahine | woman, wife |
| 'ohana | family |

Nature

| | |
|---|---|
| ahiahi | evening |
| ānuenue | rainbow |
| awakea | mid-day |
| hōkū | star |
| kahakai | beach |
| kai | sea, salty water |
| kakahiaka | morning |
| lā | day; sun |
| lani | heaven(ly); chief(ly) |
| mahina | moon |
| makani | wind |
| manu | bird |
| pō | night, darkness |
| pōhaku | rock, stone |
| pua | flower, descendant |
| wai | fresh, non-salty liquid |
| 'auinalā | afternoon |
| 'uku | louse, flea |

Hawai'i Lifestyle (hula, music, arts/crafts, games/sports)

| | |
|---|---|
| aloha | love; to greet |
| hula | dance; to dance |
| kapu | rules/laws; sacred |
| kōkua | help; to help |
| mahalo | thanks; to thank; to admire/like |

Food

| | |
|---|---|
| i'a | fish |
| kalo | taro |
| moa | chicken |
| pā'ina | to dine |
| poi | mashed kalo, 'uala, or 'ulu |
| pua'a | pig |
| 'ai | to eat; also sometimes used as the general word for the staples kalo, taro, or poi |

* Hawaiianized English

| | |
|---|---|
| 'īlio | dog |
| 'ono | tasty, delicious |

Body Parts

| | |
|---|---|
| ihu | nose |
| kiro | body |
| lima | hand, arm |
| maka | eye |
| pepeiao | ear |
| piko | navel |
| po'o | head |
| po'ohiwi | shoulder |
| waha | mouth |
| wāwae | foot, leg |
| 'ōpū | stomach |

Household Terms

| | |
|---|---|
| hale | house |
| *home | home |
| lānai | patio |
| lua | toilet |
| *lumi | room |
| noho | chair |
| pākaukau | table |

| | |
|---|---|
| puka | door; hole through something |
| puka aniani | window |

Miscellaneous Verbs

| | |
|---|---|
| hana | to work, to make, to do |
| hele mai | to come |
| hele aku | to go (away) |
| hiamoe | to sleep |
| holo | to go, run, sail |
| ho'olohe | to listen |
| ho'omākaukau | to prepare, make ready |
| kāhea | to call |
| kū | to stand |
| lele | to jump, fly |
| nānā | to look (at) |
| noho | to sit |

Miscellaneous Adjectives

| | |
|---|---|
| akamai | smart, intelligent, clever |
| anuanu | cold |
| hau'oli | happy, glad, content |
| hou | new |
| li'ili'i | small |
| loa | long, very |
| lō'ihi | long |
| maika'i | good |

* Hawaiianized English

| | |
|---|---|
| mākaukau | prepared, ready |
| nani | beautiful, pretty |
| nui | big, plenty, many, much |
| pau | finished, consumed, destroyed |
| piha | full |
| wela | hot |

Colors

| | |
|---|---|
| hinahina | gray |
| ke'oke'o | white |
| melemele | yellow (golden) |
| *palaunu | brown |
| *polū | blue |
| poni | purple |
| 'ākala | pink |
| 'alani | orange |
| 'ele'ele | black |
| 'ōma'oma'o | green |
| 'ula'ula | red |

School

| | |
|---|---|
| *kula | school |
| kumu kula | school teacher |
| noho | chair |
| puka | door; hole through something |

* Hawaiianized English



| Days of the Week | Exposure |
|---|---|
| Pō'akahi | Monday |
| Pō'alua | Tuesday |
| Pō'akolu | Wednesday |
| Pō'ahā | Thursday |
| Pō'alima | Friday |
| Pō'aono | Saturday |
| Lāpule | Sunday |

| *Months | Exposure |
|---|---|
| Kepakemapa | September |
| 'Okakopa | October |
| Nowemapa | November |
| Kekemapa | December |
| 'Ianuali | January |
| Pepeluali | February |
| Malaki | March |
| 'Apelila | April |
| Mei | May |
| Iune | June |
| Iulai | July |
| 'Aukake | August |

| Animals | |
|---|---|
| *hipa | sheep |
| honu | turtle |
| i'a | fish |
| *kakā | duck |
| kao | goat |
| *lāpaki | rabbit |
| lio | horse |
| manu | bird |
| moa | chicken |
| *pelehū | turkey |
| pipi | beef, cattle |
| pōpoki | cat |
| pua'a | pig |
| pueo | owl |
| 'ekake/kekake | donkey |
| 'īlio | dog |

* Hawaiianized English



| Numbers | 0-19; concept of -kūmā-/-kumama- |
|---|---|
| 0 | 'ole |
| 1 | 'ekahi |
| 2 | 'elua |
| 3 | 'ekolu |
| 4 | 'ehā |
| 5 | 'elima |
| 6 | 'eono |
| 7 | 'ehiku |
| 8 | 'ewalu |
| 9 | 'eiwa |
| 10 | 'umi |
| 11 | 'umikūmākahi |
| 12 | 'umikūmālua |
| 13 | 'umikūmākolu |
| 14 | 'umikūmāhā |
| 15 | 'umikūmālima |
| 16 | 'umikūmāono |
| 17 | 'umikūmāhiku |
| 18 | 'umikūmāwalu |
| 19 | 'umikūmāiwa |

NOTE: In modern secular use from 11 through 99, the numbers involving units one through nine are formed by using the appropriate tens number with the infix, "-kūmā-," and then the particular unit number; e.g., eleven is ten plus one, 'umi-kūmā-kahi.

In the older form, the Hawaiians used the infix, "-kumama- " Some kūpuna, especially those still active in Hawaiian churches where the Hawaiian Bible is read out loud, may prefer the older form. The children should be exposed to both forms but they should concentrate on learning to use the modern form actively.

# CONCEPTS OF SELF AND 'OHANA

by Māhealani Pescaia
Institute for Hawaiian Culture Studies

Aloha, e nā kumu!

As educators, our main goal is to equip our students with the tools of survival that will help them live happy and successful lives. In order to do this we need to educate the total person. Each student needs to gain understanding and knowledge not only of content areas but also of himself or herself and others.

This appendix is for you to examine and to learn more about working with children and people in general. Understanding yourselves and others can help you be more effective teachers and human beings.

There is a need today for parents and teachers to give each child positive recognition. Often this recognition is missing in the home so the school environment is a major source. A positive classroom environment can build positive self-concepts that will lead to an atmosphere conducive to learning. Often within a busy day of meeting our academic objectives, we often neglect to develop the "whole person." We set our goals geared to the average and neglect the emotional and intellectual needs of the two extremes. We are drawn to the needs of the verbal, and fail to recognize the needs of the "quiet and well behaved."

The information compiled in these pages combines information from Games People Play by Dr. Eric Berne and from Nānā I Ke Kumu, I, by Mary K. Pūku'i. I hope it will provide you with "tools" as you work with your students.

I would like to thank Mālie Mossman, Counselor at Windard Community College, for her mana'o (ideas) in this area and for sharing some of her materials.

NOTE: It should be understood that the underlying philosophy contained in the section called "The Three Me's," is NOT a traditional Hawaiian cultural philosophy but rather the adaptation of a modern American psychological perspective redressed in Hawaiian terminology.

Inside each one of us there are THREE ME'S. These three me's influence what we do and each one acts and reacts differently.

Caring---------- MAKUA (PARENT) ----------Do's and Don'ts

Figures things out---------- ALAKA'I (ADULT) ----------Makes decisions

Fun---------- KEIKI (CHILD) ----------Feelings

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## THE THREE ME'S

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ME, THE MAKUA

Makua is the Hawaiian word for parent. The makua part of us reflects the things we learn from our parents or the people who brought us up. They taught us how to do things and how not to do things; and we learned by just watching how they talked to each other and how they treated us.

There are two parts to our makua. One part is critical or bossy, reminding us of the things we should or should not do. The other part is caring, encouraging us to show love and affection, such as kōkua, laulima, and aloha.

Anytime we behave like parents, we are using our makua. Phrases like "don't do that", "clean your room", "behave yourself", "don't worry", "I'll take care of you", "let me help you" are all makua kinds of phrases.



# 'O AU KA MAKUA
# (ME, THE PARENT)

ME, THE ALAKA'I

Alaka'i is the Hawaiian word for director. This is the part of us that thinks and figures things out. The alaka'i part of us gets the facts, examines them, and speaks logically and rationally. It is said that the human brain can handle over one billion bits of information which is more than any computer can handle. We see, then, that we can learn anything our alaka'i decides to learn. Sometimes the makua or the keiki parts of us can inhibit us from learning effectively. Now that we know this, we can watch out for the keiki and makua and make sure that doesn't happen. The more things we learn about people and the world around us, the stronger our alaka'i becomes and the better decisions we can make. As we are reading this, we are using our alaka'i. When we examine and evaluate and use words like how, what, where, why and better, nicer, easier, we are using our alaka'i.





# ʻO AU KE KANAKA NOʻONOʻO
# (ME, THE ADULT THINKER)
# ALAKAʻI

ME, THE KEIKI

Keiki is the Hawaiian word for child. The keiki is the part of us that expresses feelings of fear, anger, happiness, or sadness. The keiki part of us also likes to have fun. Sometimes we let the keiki run wild like staying up too late, eating too much candy, or fighting. We need to use our alaka'i and makua to guide us so that all three parts of us are in balance. When we use words that express our feelings like "wow", "want", "I'm scared", "aw, shucks", "great", "I don't want to", we know our keiki is at work.



## 'O AU KE KEIKI (ME, THE CHILD)

The concepts of self can also be used to help students understand behavior. When students learn to understand themselves and others, they will be better equipped to function in the classroom, on the playground, as well as in the home.

The Hawaiian children were nurtured with much love and aloha. This led to positive concepts of the self. These feelings of self worth and attitudes of acceptance were reinforced in their daily lives by the practice of 'ohana concepts of aloha (love), kōkua (help), laulima (cooperation), kuleana (resposibility), and lōkahi (harmony, unity). 'Ike (recognition) was given to each other freely and openly. Within the close 'ohana (family), they received 'ike not only from parents but also from grandparents, aunts, uncles, and cousins.

These concepts of 'ohana are also applicable in classrooms today. Many teachers may already be using these concepts with their students.

The following pages present the Hawaiian concepts of aloha, kōkua, laulima, kuleana, lōkahi, and 'ike which can be taught to the children.

The children should be continually encouraged to demonstrate these 'ohana concepts in their relationships with each other.

(Note: The masters of the drawings which follow are in 17" x 22" posters in the Hawaiian Studies Program Instructional Visuals Packet: Nā Ki'i Ho'ona'auao, Series I. They are also part of a packet of 8½" x 11" masters for duplication and transparencies.)

'Ike is to recognize everyone as people. Everyone needs to be recognized, especially children. 'Ike can be given in a number of ways in school. It can be a look, a word, a touch, a hug, a gesture, a kiss and even a scolding. Children need to give 'ike to each other, so if the teacher models the giving of 'ike then the children will internalize the behavior. Just to tell the children how nice they look, or how happy you are that they are quiet, or "How pretty the ribbon in your hair looks" or "What a handsome shirt you have on today!" are all ways of giving 'ike. It helps create a positive atmosphere in the classroom and makes everyone feel maika'i (good).



# EVERYBODY NEEDS "'IKE" (RECOGNITION)

Kamaiki (Baby)

Nā Mākua
(Mom and Dad)

Keiki Kāne (Son)

Nā Kūpuna
(Grandparents)

Aloha has many meanings: love, affection, compassion, mercy, pity, kindness, charity, hello, goodbye, greetings, farewell, alas, regards. It can be shown in a variety of ways. The 'ohana provided a ready source of love, affection, kindness, courtesy and hospitality. Aloha was shown and given not only to 'ohana members but to all who visited.



# ALOHA

In every 'ohana in old Hawai'i, every member helped to get the work done. Kōkua (help) was an important part of every household and family members usually did not have to be asked to kōkua; they helped whenever they saw work being done.



# KŌKUA

One of the most important kuleana (responsibility) of every 'ohana member was to maintain acceptable standards of behavior. Attention seeking behavior was frowned upon and respect for social rank and seniority was a must. Each person was taught what was acceptable and not acceptable. He or she learned to accept and carry through his or her kuleana willingly.



# KULEANA

Everyone in the 'ohana shared the work load whether it be planting, building a house or a fishpond, preparing meals, or fishing. Each person did a share of the work to get it done. If a man wanted a house built, his 'ohana willingly came to help. The men gathered the building materials, built the foundation, put up the frame and attached the thatch. The women wove the floor mats of lau hala and made kapa out of wauke (paper mulberry). They also gathered the pili grass and other thatching materials. The children helped in whatever capacity they could depending on their age and sex. This kind of laulima made the work easier and more enjoyable.

# LAULIMA

The 'ohana considered lōkahi (harmony, unity) very important, lōkahi not only with people but also with the universe. The members of the 'ohana showed this in their daily living by sharing goods and services with each other. The 'ohana members generously gave to others no matter how little they themselves had. Strangers were greeted with aloha and were invited to come in and partake of food. Anyone visiting another area took food or a gift of some kind as a symbol of hospitality. They established lōkahi with the universe by observing the kapu of daily living, which included homage to the gods. These kinds of behaviors nurtured harmony or lōkahi in the 'ohana.



# LŌKAHI

Teachers have a tremendous influence on the children with whom they relate and so are very instrumental in changing behavior. Many children today are growing up with both parents working and therefore need to have some family-oriented activities in school with which they can identify.

Teachers can establish a family-type atmosphere in the classrooms by creating a positive, supportive atmosphere. In early Hawai'i, the people lived in large 'ohana with parents, aunts, uncles and cousins, grandparents and great grandparents living in close proximity. When a child was reprimanded by his/her parents, he/she had many other sources of aloha and support to make him/her feel better. Today, we as teachers, can provide support systems for our students by teaching them to give 'ike (recognition) to each other more freely. This behavior is learned, so the model we bring to the classroom is of great importance.

I hope that this narrative on 'ohana has helped you become more aware of the Hawaiian 'ohana concepts. By using and modeling these concepts in your classroom, the students will be better equipped to build positive self concepts and attitudes of acceptance in the classroom.

# 'OHANA

by Māhealani Pescaia
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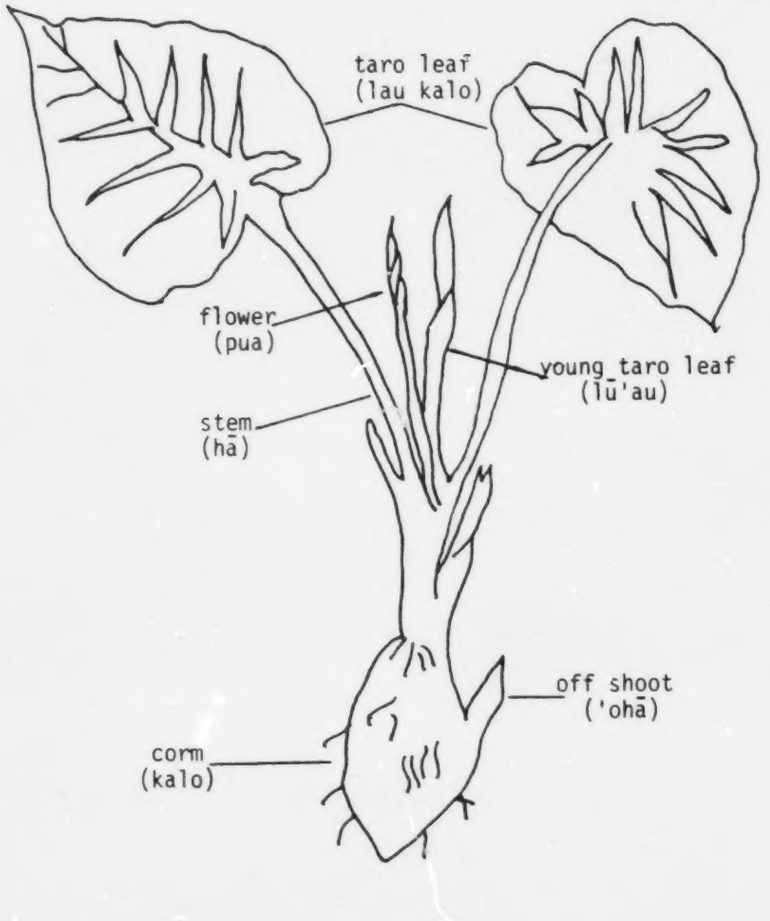


"Members of the 'ohana, like taro shoots, are all from the same root," says Mary K. Pūku'i.

Kalo, the corm of the taro plant, was the "staff of life" in the Hawaiian diet. It was also closely linked to the origin of the people with the birth of Hāloa.

'Ohana included those born with blood ties, those who were unrelated but accepted by the 'ohana, and those who died and remained spiritual ancestors of the 'ohana. It included the:

| | |
|---|---|
| 'aumākua | spiritual ancestors |
| kūpuna kualua | great, great grandparents |
| kūpuna kuakahi | great grandparents |
| kūpuna | grandparents and all relatives of the grandparent generation |
| mākua | parents and relatives of the parent generation (aunts and uncles) |
| keiki | first cousins within the 'ohana or hānai (adopted) |

The 'ohana was the unit that provided for the social, economic, and educational needs. The 'ohana who lived in the uplands shared kalo (taro), mai'a (banana), and 'uala (sweet potato) with their 'ohana by the seashore who in turn gave them products from the sea. The entire 'ohana showed up to help an 'ohana member build a hale (house).

The mākua performed the daily work of the 'ohana. They worked in the lo'i kalo (taro fields), caught fish, and performed the daily tasks necessary for survival. They bore nā keiki (the children) to continue the family line.

Nā keiki were given responsibilities too. They took care of the aged members of the 'ohana and helped their mākua by carrying food, water and materials for building houses, canoes, etc. Nā keiki were sometimes hānai (adopted). Nā mākua sometimes gave a baby to a close relative as a sign of aloha (love). This was usually done only within an 'ohana so that the keiki grew up knowing his/her biological parents.

Nā keiki in an 'ohana grew up having many mākua to care for them. The 'ohana provided the emotional support, love and security to the child especially when he/she lost his/her parents or was reprimanded by them. Each child grew up with a feeling of well-being, acceptance, self-identity and self-worth.

The kūpuna (grandparents) were dearly loved and revered by the 'ohana. They were the source of wisdom and understanding. The oldest kupuna usually was the hānau mua (first born) or haku (head) of the 'ohana. He/she settled problems and called the 'ohana meetings. These kūpuna took care of the little children in the 'ohana while the mākua worked. They developed close ties with their mo'opuna (grandchildren), especially with the oldest. They were the teachers of the 'ohana and taught planting, fishing, housebuilding and weaving. They taught the chants, wise sayings, stories, genealogies and customs. Those children who showed special talents were sent to special kāhuna (experts) or kumu (teachers) for instruction.

The 'aumākua were the ancestors who remained members of the 'ohana in spirit form. They were guardians and provided strength, inspiration and help. They appeared to members of the 'ohana as sharks, birds, lizards, eels, fish, rocks or plants. They were a real part of the Hawaiian 'ohana then, and still are in some 'ohana today.

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# CHILDREN OF THE 'OHANA

by Marilyn Okumura and Māhealani Pescaia
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The 'ohana or extended family included: 1) mākua who were the parents and all relatives of the parent generation (aunts and uncles); 2) kūpuna who were grandparents and all relatives of the grandparent generation; 3) keiki who were the children in the 'ohana who considered themselves brothers and sisters to each other regardless of natural parentage (Pūku'i: 162); and 4) 'ōhua who were unrelated dependents and helpers.

In the 'ohana the hiapo or first-born child had his/her future clearly predestined before birth. Rarely was the hiapo reared by his/her natural parents. The hiapo was the "living history book", who memorized the family genealogical chants, social and religious customs, kapu and specialized skills and knowledge. He/she was to assume the responsibilities of the haku in times of family illness, dispute and other family crises. As a result of his/her position, the hiapo often also became the favorite of the kūpuna. (Pūkuʻi:51)

The grandparent generation in the 'ohana had the privilege of taking as hānai the hiapo of one's children. The feeling was the hiapo belonged to the kūpuna and the natural parents had the child on "loan" until he/she was given to the grandparents. The grandparents' responsibility for the child took precedence over that of the parents. If the first born child was a male, he was taken by relatives on the husband's side. If the first born was a girl, she was taken by those on the wife's side. Those who took the child taught him/her to do the work skillfully. Sometimes these children were not allowed to work at all. They became the kūpuna's favorite and were hand fed by their kahu (attendant). They were the punahele (favorites).

When talking to each other, the terms for brothers and sisters were used for address as well as being descriptive. However, a son would not address his male parent as "father" because family member terms were only descriptive. Relatives, whatever their relationship addressed each other by name. A grandparent was correctly addressed as kupuna in the old days. Kūkū/tūtū, derived from the word kupuna, became more frequently used terms of endearment for grandparent. (Handy: 44-45)

A ceremony to decide whether or not a child was ready to be weaned placed the decision with the child. A mother and child would sit facing each other with two stones or bananas representing the mother's breasts placed between them. A prayer to the god Kū and his wife Hina was offered by a third person asking that the baby will no longer wish for his/her mother's milk. If the child reached for the objects and tossed them away, he/she was ready to be weaned. If the child did not toss the objects away, nursing continued and the ritual was repeated again later. (Handy: 88-89)

When a male child was born, he was taken to the hale mua (men's eating house) where he was dedicated to the gods. If he was the son of an ali'i he was taken to a heiau to be dedicated. There his piko (umbilical cord) was cut and the placenta was washed in water and was buried by the kahuna in a secret place where it would not be disturbed. The child was bathed, wrapped in kapa and taken to the kuahu (altar) and dedicated to the gods.

When the male child was about five years old, a special ceremony was held. Up until this age, boys did not wear malo and ate with the women and girls in the hale 'aina (women's eating house). The ceremony called "Kā i mua" or "thrust to the mua" changed this situation. The boy was given his first malo at this ceremony and could join the men in the hale mua (men's eating house). A female child did not have such special ceremonies as she moved from babyhood to childhood or to adolescence.

In the Hawaiian life cycle there did not exist any form of ceremonial ritual of initiation into manhood. At age seven or eight a boy was circumcised (kahe ule) by a skilled kahuna and a feast was held. There was no significance to this event other than that the circumcision facilitated cohabitation and enhanced pleasure. (Handy: 94)

If a child showed a special aptitude in an art, he was sent to live with a kahuna. Training started at an early age and a boy training to be a kahuna (expert) was placed under strict kapu. His food utensils, water gourd, clothing, bed and house were considered sacred. He was not allowed to mingle with other people and especially not with women. After his training was completed and the cleansing had been performed, he was allowed to associate with other men. But, he had to keep himself free of women and had to abide by all of the kapu taught him by the kahuna (expert). Somehow, the kahuna usually knew when his student had broken a kapu. To observe ALL the kapu well was to learn ALL of what the kahuna had stored in his head. (Handy: 90)

Grandparents had special affection for certain children who were attractive and charming. These children were made punahele (favorites). They were given special dishes and the best of everything. In Ka'ū, a "carnival" was held every few years for the display of the punahele of the kūpuna. (Handy: 101)

Each child had duties according to his/her size in such activities as planting and fishing, house-building, preparing feasts, working on irrigation ditches, taro terraces, walls and on ponds. A child's age was determined not by years but by the tasks he or she could do. For example:

"The size that enables him to carry a water bottle."
A two-year-old was given a small gourd full of water to carry from the upland.

"The size that enables him to carry two coconuts." (age five or six)

"The size that enables him to carry a smaller member of the family on his back." (age ten) (Handy: 178)

Children learned by watching and doing. To ask questions was considered bad manners. Children were taught that certain gestures were rude, offensive and might even bring death as an offended person may have consulted a sorcerer by way of revenge. Treating parents and grandparents with utter disregard of their feelings was not acceptable. Children were taught that they were not to behave in a bold manner toward strangers, ask for things, go through the premises of others without permission, claim something that was not one's own. These rude behaviors were called maha'oi. For children to interrupt a conversation was rude. The head was regarded as sacred; therefore, to pull the hair or strike the head of another was considered an insult. (Handy: 188-91)

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# Ho'oponopono

(Problem Solving)

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The Hawaiians had a practical way of dealing with problems and personal conflicts. They used a process called ho'oponopono which means "to make right." The process involved pule (prayer), mahiki (discussion), mihi (confession), mutual restitution and hui kala or kala hala (forgiveness). A family elder or kupuna usually conducted the meeting. The persons directly involved were included in the sessions. Ho'oponopono was basically a family matter but often involved a non-relative.

Ho'oponopono has proven to be an effective technique in working with conflict. Teachers will find that even the children can do ho'oponopono within their own peer groups. Teaching them the technique and using the process to solve conflicts will eventually lead to a lessening of physical aggression in preference to "talking it over."

Ho'oponopono can be used today in the classroom. The children involved in a conflict can carry on a discussion of the problems under the guidance of the teacher. The procedure is similar to that used in group therapy and the success of the process depends upon the willingness of the children to be open and truthful. When children are allowed to vent their inner feelings, they learn to accept criticism from others in the group. This open communication allows everyone to feel free to express his or her feelings without the fear of being threatened. The ho'oponopono procedure for the classroom can be as follows: (Have the children sit in a circle on the floor.)

1. Ho'omalu (Quiet period): A brief period of silence for the children to concentrate on the purpose of the session—(20-30 seconds).

2. Kukulu kumuhana (Statement of the problem): The teacher states the problem as he/she understands it.

3. Mahiki (Discussion): The children express themselves and give their views of the conflict. They talk to the teacher who in turn asks appropriate questions of others in the group. As the discussion continues and as the bad feelings become pacified, the children will begin talking directly with each other. The teacher tries to stay out of the discussion as much as possible to allow the children to freely express their feelings. The teacher may ask questions like:

    a. What do you like about (Student's name) ?

    b. What does he/she do that irritates you?

    c. What are some helpful ways we can help him/her improve?

4. Ha'ina (Confession): The children will readily admit to guilt if they do not feel threatened by the others. All children involved in the conflict will admit their guilt in the incident and ask forgiveness from each other.

5. Kalana (Forgiveness): When the feelings in the group are supportive, then forgiving is a natural reaction. Both parties have to be willing to forgive each other in order to clear away the bad feelings of guilt, shame and malice.

6. Panina (Closing): Have the children react naturally to the end of the session. Encourage some kind of positive showing of aloha such as a pat on each other's back or a hand shake or a hug. Touching is a magical cure-all and leads to warmer relationships.

The Hawaiians knew that emotional problems caused physical illnesses. When a person needed medical attention, the kahuna always asked if ho'oponopono had been conducted to cleanse and purify the inner self. He treated the physical malady only after ho'oponopono had been conducted.

Ho'oponopono was also a religious process. The Hawaiian gods and family gods were asked to help the family solve its conflicts. Prayers were frequently recited throughout the sessions. The procedure for ho'oponopono was as follows:

1. Pule: The leader offered a prayer to the gods, calling upon them for guidance.

2. Kūkulu kumuhana: The problem was stated and the mana (energies) of the people present were pooled together into a unifying force.

3. Mahiki: Each successive problem was discussed and corrected like the peeling of an onion. The people spoke directly to the leader who in turn questioned the members of the group about the problem. Each person vented his feelings and there was remedial action for each aspect of behavior. 'Oia'i'o (spirit of truth) was a very important part of ho'oponopono. No matter how painful it was, revealing what really happened was of utmost importance. Sincerity was a basic requirement of interpersonal relationships, especially of ho'oponopono. Hihia was the entanglement of resentment, hostility, guilt, depression and discomfort. This affected everyone including the innocent bystanders; for as the truths were revealed, a confusion of different kinds of feelings resulted in the revelation of hurts that went back for days, months and even years before the present hurt took place.

4. Ho'omalu (Silent period): A leader may call ho'omalu to allow the participants to fall into silent thought for meditation, or to cool tempers, or simply to rest. It sometimes could last a few minutes or as long as a week. Family members could not talk about the problem at all, especially to outsiders.

5. Mihi: Repentance or confession was a big part of ho'oponopono. Sometimes mihi was accompanied with gifts of food to the gods. These gifts were reparation to the people who feasted on the foods after the gods had taken the mana (spiritual essence) from the food offerings. After the spiritual essence was removed, the living family later feasted on the offerings.

6. Hui Kala (Forgiveness): The person who was wronged must forgive the person who wronged him/her. Each must release free each other of the grudges and embarrassments permanently.

7. Mō ka piko (cutting the cord): If a person refused to forgive and release, then mō ka piko was declared. The famil severed the cord that tied him/her to the family and he/she was no longer a part of the 'ohana. He/she had to physically remove himself/herself from the community and live elsewhere.

8. Pule ho'oku'u: When everyone had forgiven each other for the wrong doing, a closing prayer was recited which termin the ho'oponopono session.

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Hawai'i Aloha. LP, ST-307, Waikiki Records, Various Artists.

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Meet Palani Vaughan and the Sunday Manoa. LP, HS-524, Hula Record, Palani Vaughan.

Melveen Leed's Grand Ole Hawaiian Music Nashville Style. LP, SL-7053, Lehua, Melveen Leed.

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Right on Kēia. LP, HS-550, Hula Records, Kīhei Brown Trio.

This is Eddie Kamae and the Sons of Hawai'i. LP, HS-513, Hula Records, Eddie Kamae.

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| | |
|---|---|
| 0051-2 | E Komo Kai |
| 1453-2 | Empire: Parker Ranch |
| 1060-2 | Farming in Kula |
| 0195-2 | Hawaiian Fishing |
| 1174-2 | Hawaiian Seafood: Limu |

## SONGS

| TITLE | REFERENCE IN HSCG | TITLE TRANSLATION/SONG TOPIC/SUBJECT | SOURCES |
|---|---|---|---|
| Across the Sea | pp. 111-113 | | United Artists, Songs of Hawai'i, pp. 27-29. |
| Aloha 'Ia Nō 'O Maui | pp. 81-83, 178-179 | Beloved indeed is Maui (hula) | Kahaiali'i Maui Style, LP, Naupaka Records. NPC-0001. |
| Aloha 'Ia 'O Wai'anae | p. 233 | Beloved is Wai'anae (hula) | *Hawaiian Style, LP, Hula Records, HS-508, Kahauanu Lake Trio. |
| Aloha Kaho'olawe | p. 87 | Island of Kaho'olawe | *Right on Kēia, LP Hula Records, HS-550. |
| Aloha Kaua'i | p. 233 | Expresses love for lei mokihana & Kaua'i (hula) | *Mele Hula, Vol. I, LP, Noelani Records, NRS-102. |
| Aloha O'ahu | pp. 85, 180 | Lei 'ilima (hula) | The Islands-Music of the 50th State, LP, Hula Records, Various Artists |
| Anahola | p. 233 | Name place on Kaua'i (hula) | *Genoa Keawe Hulas of Hawai'i, LP, Genoa Keawe Records, GK-101. |
| 'Āina 'O Lāna'i (He Mele Nō Lāna'i) | p. 87 | Island of Lāna'i (hula) | GKHH, LP. |
| 'Ama'ama | p. 121 | Mullet | Music of Old Hawai'i, LP, Hula Records, H-506. |
| Beautiful 'Ilima | pp. 85, 180 | O'ahu's flower | Elbert & Māhoe. Nā Mele o Hawai'i NEi, p. 37. |
| Beautiful Kaua'i | pp. 93, 234 | Hapa haole hula | 45 RPM, Hula Records 541, Kawai Cockett. |
| Cockeyed Mayor of Kaunakakai | p. 95 | Hapa haole comic hula composed for Hollywood actor Warner Baxter | R. Alex Anderson's Famous Songs of Hawai'i, p. 12. |
| E Hīhīwai | p. 95 | Shell fish (also called wī) of Moloka'i (hula) | Ho'omau, LP, HS-5005, Hawai'i Sons Records, Sons of Hawai'i, MLGOHN, LP. |
| Got to Get Away | pp. 101-103, 224-226 | | Cecilio and Kapono, LP, Columbia Records PC-32928. |
| Hanohano Nā Cowboy | p. 131 | The Glorious Cowboys (hula) | Meet Palani Vaughan and the Sunday Mānoa, LP, Hula Records, HS-524. |

| TITLE | REFERENCE IN HSCG | TITLE TRANSLATION/SONG TOPIC/SUBJECT | SOURCES |
|---|---|---|---|
| Happy Hawaiian Music | pp. 107-109, 229-231 | Hapa haole song | Melveen Leed's Grand 'Ole Hawaiian Music Nashville Style, Lehua Records, SL-7053. |
| Hasegawa General Store | p. 93 | Merchandise found at the store in Hana, Maui. | George Paoa Trio Live At the Maui Hilton, LP, Hula Records, HS-539. |
| Hawai'i Aloha | pp. 17, 48 | Beloved Hawai'i | NMHN, p. 42 |
| Hawaiian Hospitality | p. 93 | Hapa haole hula | Easy Hulas, LP, Mahalo Records, MS-4001, Charles Kaipo. |
| Hawaiian Lullaby | pp. 97-101 | Extolls the beauties of Hawai'i | MLGOHN, LP. |
| Hawai'i Nei | pp. 19-21, 51 | Hapa haole song | |
| Hawai'i Pono'ī | pp. 13-17 | Hawai'i's anthem | King's Book of Hawaiian Melodies, p. 30. |
| Hawai'i the Beautiful | pp. 11-13, 47 | Hapa haole song | |
| Hele on to Kaua'i | pp. 93, 95-97 | Hapa haole song | 'Ono, LP, Poki Records, SP-9010. |
| Hilo Hanakahi | pp. 77-79 | Districts on Hawai'i | It's A Small World, LP, Pumehana Records, PS-4902, Nā Mele o Nā 'Ōpio. |
| Hu'ehu'e | p. 233 | Cowboys of Hu'ehu'e, Hawai'i (hula) | HS, LP. |
| If I Should Ever Travel | pp. 19, 50 | Travelling to other countries | |
| Ka Nani A'o Ka'ū | p. 233 | The beauty of Ka'ū, Hawai'i (hula) | GKHH, LP. |
| Ka Paniolo Nui O Kualapu'u | p. 233 | For George P. Cook I, of Kualapu'u (hula) | HS, LP. |
| Ka Uluwehi O Ke Kai | pp. 117-121 | The plants of the sea-limu (hula) | *Hi'ipoi i Ka 'Āina Aloha, LP, Hula Records, HS-568, Edith Kanaka'ole. |
| Kaulana Kaua'i | p. 233 | Describes districts on Kaua'i (hula) | HS, LP. |
| Kaulana 'O Waimānalo | p. 233 | Famous is Waimānalo (hula) | Guava Jam, LP, Hula Records, HS-543, Sunday Mānoa. |
| Ke One Kaulana O Hawai'i | pp. 115-117 | Describes districts on Hawai'i | HAA, LP. |
| Kīpū Kai | p. 233 | Describes the home of Jack Waterhouse on the island of Kaua'i (hula) | Mele Hula, Vol. I, LP, Noelani Records, NRS-102, Various Artists. |

| TITLE | REFERENCE IN HSCG | TITLE TRANSLATION/SONG TOPIC/SUBJECT | SOURCES |
|---|---|---|---|
| Little Grass Shack | p. 91 | Hapa haole hula | United Artists, Songs of Hawai'i, pp. 8-9, EH, LP. |
| Lumaha'i | p. 233 | A famous beach in Hanalei, Kaua'i (hula) | GKHH, LP. |
| Maika'i Kaua'i | pp. 85, 182 | Kaua'i beauty | NMHN, p. 75 |
| Manowaiopuna | p. 233 | Stream in the Kōloa district of Kaua'i (hula) | Criterion Music Corp., Authentic Songs from the Pacific Isles, Book 6, p. 21, GKHH, LP. |
| Maui Girl | p. 91 | Hapa haole song | Criterion Music Co., Authentic Songs of Polynesia from Hawai'i, Tahiti and Maori, Book 2, p. 62. |
| Moloka'i Memories | pp. 109-111, 232 | Hapa haole song | MLGOHM, LP. |
| Moloka'i Nui A Hina | pp. 85-87, 181 | Great Moloka'i of Hina | NMHN, pp. 78-79 |
| My Hawaiian Country | pp. 103-105, 227-228 | Hapa haole song | My Hawaiian Country, Melveen Leed, LP, Lehua Records, SC-7022. |
| Nā 'Ai 'Ono | pp. 123-125 | The delicious foods | *This Is Eddie Kamae, LP, Hula Records, HS-513. |
| Nā Lei O Hawai'i | pp. 9-11, 46 | The wreaths of the eight islands | KBHM, pp. 6-7. |
| Nā Moku 'Ehā | pp. 71-77, 177 | The four islands | KBHM, p. 80. |
| Nā Pana Kaulana O Keaukaha | pp. 113-115 | The famous districts of Keaukaha | HAA, LP. |
| On the Beach at Waikiki | p. 93 | Hapa haole song | SH, pp. 44-45. |
| 'Ōpae E | pp. 121-123, 223 | Shrimp | TEK, LP. |
| Paniolo Country | pp. 125-129, 235 | Hapa haole song | Gabe Kila and the Nānākuli Song, LP, J-San Records, JSR-1974. |
| Pauoa Liko Ka Lehua | p. 233 | The lehua bud of Pauoa (hula) | GKHH, LP. |
| Punalu'u | p. 233 | An area in Windward, O'ahu (hula) | HS, LP. |
| Pūpū O Ni'ihau | pp. 87, 183 | Shells of Ni'ihau (hula) | 45 RMP 49th State Records 254 by Genoa Keawe. |
| Song of Old Hawai'i | p. 95 | Hapa haole hula | SH, pp. 5-7; EH, LP, Mahalo Records. |
| 'Ulupalakua | p. 233 | Ranch in Maui near Kula (hula) | GKHH, LP. |
| Waiomina | pp. 129-131 | Wyoming - 1908 World Championship in Cheyenne (hula) | *Drinking Champagne, LP, Hula Records HS-542. |

ACRONYMS

RECORDS

EH - Easy Hulas, LP.

*GKHH - Genoa Keawe Hulas of Hawai'i, LP.

*HS - Hawaiian Style, LP.

*HAA - Hi'ipoi I Ka 'Āina Aloha, LP.

MLGOHM - Melveen Leed's Grand 'Ole Hawaiian Music Nashville Style, LP.

*TEK - This is Eddie Kamae and the Sons of Hawai'i, LP.

*Words of the songs are printed on the record jackets.

BOOKS

KBHM - King's Book of Hawaiian Melodies

SH - Songs of Hawai'i

NMHN - Nā Mele O Hawai'i Nei